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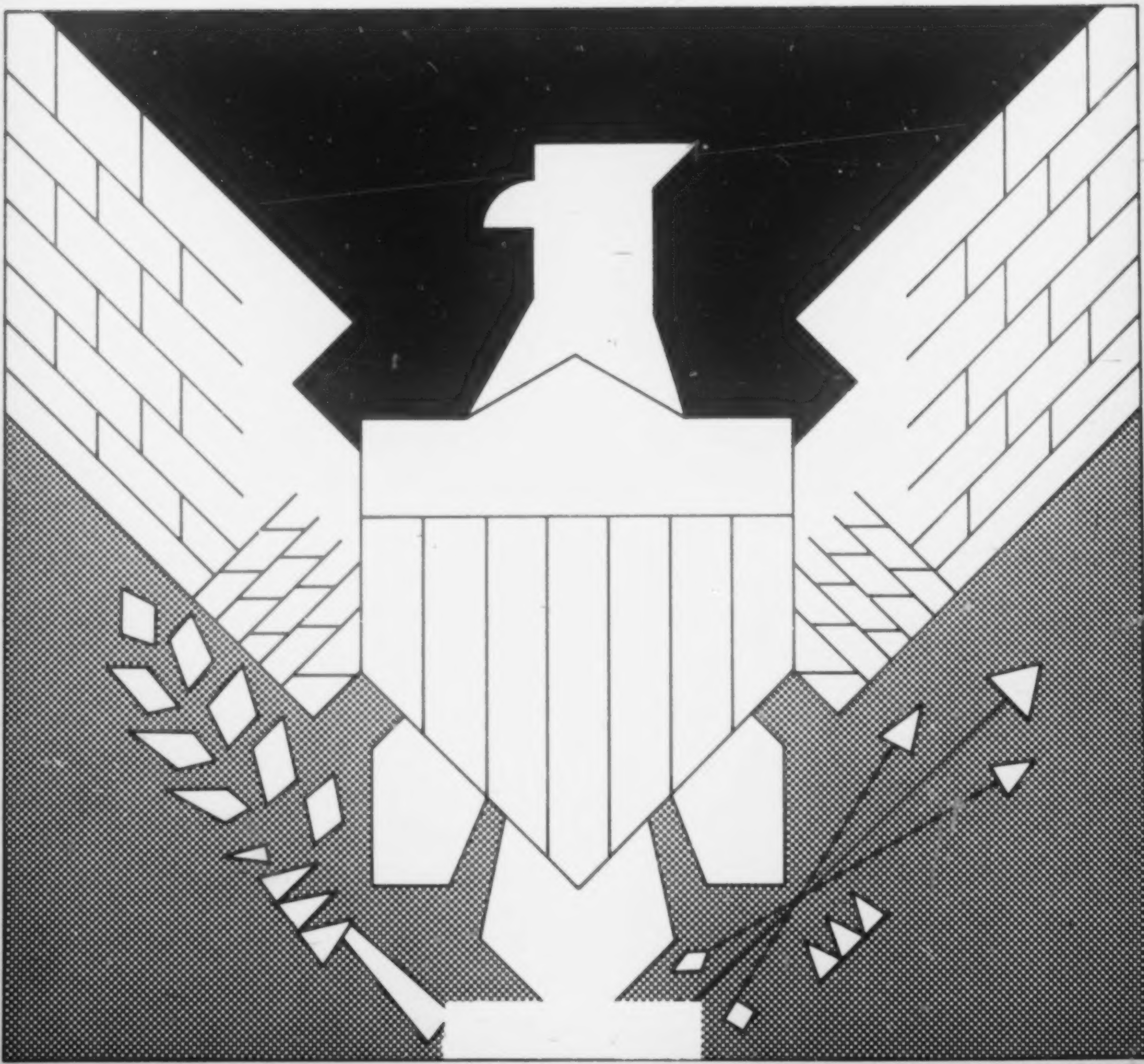
Social Representation in the U.S. Military



CBO STUDY

SOCIAL REPRESENTATION IN THE U.S. MILITARY

The Congress of the United States
Congressional Budget Office

PREFACE

Not all segments of society are equally represented in today's United States military, nor have they been at any time in the nation's history. Concern has often been expressed over the under- or overrepresentation of specific racial groups, or over the alleged "economic conscription" into the military of those to whom society offers few attractive alternatives. Issues of social representation figured prominently in the debate over ending the draft, and they have arisen again in discussions about resuming conscription or introducing some form of national service.

This study seeks to inform the discussion of social representation in the military by providing a comprehensive look at the composition of today's forces in terms both of demographic characteristics and of socioeconomic backgrounds. It also examines the compositional changes that have taken place during the 1980s. In keeping with the mandate of the Congressional Budget Office (CBO) to provide objective analysis, the study reaches no conclusions about the appropriateness of current patterns of representation, nor does it recommend ways to alter those patterns.

The study was prepared in response to the request of the Chairman of the Manpower and Personnel Subcommittee, Committee on Armed Services, U.S. Senate.

Richard L. Fernandez of CBO's National Security Division prepared the report under the general supervision of Robert F. Hale and Neil M. Singer. The author gratefully acknowledges the valuable assistance of CBO colleagues Elizabeth Chambers, Corey Luskin, and Michael Berger. The study would not have been possible without the generous help of many people at the Defense Manpower Data Center, including Paul Nickens, Kai Milner, Virginia Bassett, Teri Cholan, Helen Hagan, Les Willis, and Michael Dove. Murray Ross of CBO and Martin Binkin of the Brookings Institution provided valuable comments on an earlier draft of the paper. CBO, of course, bears full responsibility for the final product. Pat Frisby and Rhonda Wright prepared earlier drafts, and Francis S. Pierce edited the manuscript. Kathryn Quattrone prepared the report for publication.

Robert D. Reischauer
Director

October 1989

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SUMMARY

Do U.S. military personnel adequately represent all segments of society? Concerns about the social composition of the military have frequently been raised in the Congress. As early as 1974, in the first full year of the All-Volunteer Force, the Senate Armed Services Committee reflected the general Congressional interest in who serves in the military by directing the Defense Department to submit annual reports on population representation among active-duty enlisted personnel. The social composition of the military has not yet become a major budgetary issue, but the links frequently made between representation and either a draft or national service create the prospect that it may arise in future budget deliberations.

This paper provides a comprehensive look at the social representation of U.S. enlisted forces, within the limits of available data. Along with demographic measures--sex, race, and geographic distribution, for example--that form the basis of the annual Defense Department reports, it also examines measures of socioeconomic status such as family incomes. The analysis considers recruits to the reserve components as well as active-duty recruits. The paper also explores the forces shaping the social composition of the career forces. Finally, it shows the likely composition of the Army's recruits if a small-scale draft were to be instituted.

The analysis of socioeconomics in this study is not definitive. Although it relies on the best data currently available, its use of home-area measures of socioeconomic status--based on recruits' home ZIP codes--limits the strength of the conclusions that can be drawn. While the directions of the differences between recruits and the general youth population that are found are probably correct, the magnitudes may understate the differences that would be found if the characteristics of recruits' families were known.

Virtually every group within American society is represented within the military, but this does not mean that every group is equally represented; even conscription could not assure equal representation. Moreover, the major issues raised in discussions of representation include some arguments for seeking a more representative military and others for accepting unequal representation. Objective analysis cannot determine whether any particular pattern of representation is adequate; that is a judgment each observer must make. Several general observations, however, emerge from this study.

DEMOGRAPHIC REPRESENTATION

Members of racial minority groups are disproportionately represented among recruits--particularly in the Army--although less so today than at the beginning of the 1980s. The percentage of blacks among active-duty recruits fell by almost three percentage points between 1980 and 1987, and by more than six points among Army recruits. But blacks, as well as other minorities, continued to be overrepresented among active-duty recruits in 1987. Similar patterns appear among recruits entering the six reserve components.

Today's recruits generally score better on the standardized military entrance test than the general youth population, and are more likely to have graduated from high school. Nearly 94 percent of 1987 active-duty recruits held high school diplomas, compared with about three-quarters of enlistment-age youths. Roughly two-thirds scored above average on the entrance test, relative to the general youth population. These results, like those for race, represent a considerable change from the beginning of the decade, when testing problems and recruiting difficulties resulted in large numbers of low scorers and nongraduates being accepted for military service. The Army achieved particularly impressive gains.

SOCIOECONOMIC REPRESENTATION

The socioeconomic characteristics of recruits' home areas are broadly similar to those of the general youth population, although recruits tend to come from areas with somewhat lower family incomes and education levels. About 55 percent of male active-duty recruits in 1987 came from areas with family-income levels placing them in the bottom half of the distribution across all ZIP-code areas. Lower-middle-income areas were most heavily represented; the very bottom of the distribution was only slightly overrepresented. Areas in the top tenth of the income distribution provided only about 6 percent of recruits, but even in the highest-income areas in the country some young people enlisted. Once again, the Army is less representative on this measure than the other services combined, although by 1987 the difference was slight. The reserve components, in contrast, exhibit considerable diversity in the home-area incomes of their recruits. Of 1987 male recruits to the Army National Guard, 64 percent came from areas in the bottom half of incomes, apparently largely as the result of the Army Guard's tendency to draw disproportionately from rural areas of the country.

Black and white recruits tend to come from different socioeconomic strata within their respective populations, with black recruits coming disproportionately from areas with above-average black incomes and better-educated black adults. Only 44 percent of black male active-duty recruits in 1987 came from areas in the bottom half of the income distribution for black families, compared with almost 55 percent of white recruits (relative to white incomes). Blacks living in areas in the highest tenth of black family incomes are almost twice as likely to enlist as those living in bottom-tenth areas; for whites, areas with the highest incomes are underrepresented. Particularly for the Army, the situation for black recruits in 1987 represented a marked change from that in 1980, when black recruits were drawn much more heavily from lower-income areas.

FACTORS AFFECTING ENLISTMENT AND REENLISTMENT

The various changes between 1980 and 1987 in the composition of recruits--reduced minority participation, higher recruit quality, and greater representation of higher-income areas--are all explained by the services' improved ability, and greater desire, to be more selective about whom they accept for enlistment. Improved military pay, more generous GI Bill benefits, and other factors combined in the early 1980s to make recruitment of well-qualified persons easier. The services responded by raising their standards for enlistment, accepting fewer applicants who had not completed high school and who scored poorly on the military entrance test. Blacks tend to score lower on the entrance test, however, than do nonblacks, and a smaller percentage complete high school. Thus, the higher standards in effect by 1987 disqualified more than 70 percent of black males from enlisting, compared with only 30 percent of nonblacks. The higher standards also meant that blacks who were accepted in 1987 were more likely to come from higher-income areas than were their counterparts in 1980. Ironically, however the reduction in the percentage of black recruits did as much to improve overall representation of all income areas--because black incomes are so much lower than white incomes--as did the upward shift in the distribution of home-area incomes for black recruits.

The tendency of recruits to represent imperfectly the youth population from which they are drawn is generally reinforced by their subsequent decisions to stay in the military or to leave. Blacks reenlist at higher rates than do whites, and enlistees who originally came from lower-income areas are more likely to reenlist than are those from higher-income areas. The latter tendency, which is true for both blacks and whites, actually improves socioeconomic representation among black enlistees, but shifts downward the distribution of home-area incomes for all enlistees together. In addition, the higher reenlistment rates of blacks and other minorities, combined with their lower incomes, contribute to the downward shift as a group of enlistees progresses into the early years of a military career.

EFFECTS OF A DRAFT

A return to conscription--the most commonly suggested remedy for perceived representation problems under the All-Volunteer Force--probably would not fully equalize the participation of all segments of society in the military. Unless volunteering was sharply curtailed, a primary obstacle to full equality would be the small scale of the required draft, given the current size of U.S. forces. Sharply cutting recruit pay might lead the Army to rely on draftees to fill half of its annual requirement for recruits, but the mixed force of draftees and volunteers would still tend to represent lower-income areas disproportionately, albeit less so than today's recruits. Minority participation, however, would be brought much more into line with the minority share of the youth population. The tendencies toward more equal representation of all groups could be weakened by a change in the composition of volunteers, which might result if recruit pay were cut. The services other than the Army probably would not need to use draftees, but might see their recruits' representation of society worsen. Recruit quality, as measured by test scores and education, could be expected to fall in all the services. Finally, the composition of the career forces would be little affected, but career personnel would constitute a smaller percentage of all enlistees, presumably reducing their influence in shaping the attitudes of the enlisted forces.

CONCLUSION

Although generalizations are difficult to make given the many different observations that emerge from this study, a common thread seems to run through the quantitative results. In a volunteer environment, the composition of the military is determined by two factors: (1) who is willing to serve, and (2) whom the services choose to accept. In general, those young people with the fewest alternatives, which tends to mean those from less-advantaged backgrounds or who face discrimination in civilian labor markets, are most likely to seek service in the military. When recruiting conditions are poor, this underlying tendency is apparent. When recruiting conditions are good and the services are able to pick and choose among applicants, their desire to accept the best qualified will tend to favor the more advantaged. This does not imply discrimination or favoritism, but simply that more-advantaged youths are more likely to graduate from high school and to score well on the military entrance test.

Instituting a draft would not alter the basic determinants of who volunteers for military service; it would only dilute the unrepresentative volunteers with some number of draftees who presumably would be more randomly selected. If the services' personnel needs were large relative to the number who volunteered, a draft would yield a recruit force that matched the composition of the general youth population fairly closely. If personnel needs were small--as now, when only about one in five of the young men reaching enlistment age each year must enlist, and qualified volunteers are in ample supply--a draft would improve representation only modestly.

CHAPTER I

INTRODUCTION

Pick virtually any identifiable social group among America's youth today, and one will probably find some member of that group serving in the U.S. military. People of diverse social, ethnic, and educational backgrounds serve in the active forces, the Reserve components, and the National Guard. Recruits come from every part of the country; only 27 of the nation's counties and parishes, with a combined population of less than 47,000, were not represented among 1987's new active-duty enlistees.

The diversity of backgrounds among the nation's military personnel does not mean that all elements of society are equally represented. Rural areas of the country have traditionally supplied more than their shares of servicemen and servicewomen. Military service has also been seen as a way for immigrant groups to demonstrate their attachment to their new country. And the prospect of a steady job with generous fringe benefits has had greater appeal to the economically disadvantaged than to those with greater fortune, even when recruit pay was low and conscription filled the services' demands for personnel. A most visible (and sometimes controversial) indicator of the economic factor is that, by 1980, blacks constituted more than 22 percent of active-duty recruits, far more than their 13.6 percent share of the 18- to 21-year-old population.

Concerns about the social composition of the U.S. military have formed a primary rationale behind calls for a return to conscription or some form of national service. Senator Ernest Hollings, for example, in introducing draft legislation, argued that "The decision of 1973 [to end the draft] insured that our Nation's defense burden would rest for the most part with the poor, the black, and the disadvantaged for years to come. And without a cross-section of representation, we have no cross-section of support. There is not an equal call on all Americans to defend our security."[1] Senator Lloyd Bentsen observed, "The [All-Volunteer Force] is increasingly staffed by rural whites and urban blacks and browns, and black Army volunteers are generally better educated than white volunteers."[2] The Democratic Leadership Council, whose membership includes well over one-third of the Democratic members of Congress as well as many governors and other state and local officials, put the case even more strongly:

> The military has become for many low-income Americans, and particularly minorities, an employer of last resort. That is not, in itself, objectionable. . . .Yet no matter how well we pay them, we cannot ask the poor and underprivileged alone to defend us while our more fortunate sons and daughters take a free ride, forging ahead with their education and careers.
>
> More than simple fairness is at stake. We must also ask ourselves: how long can a democratic republic survive if its most fortunate and capable citizens--America's future leaders--feel little obligation to contribute to its defense and well-being? And how can those leaders be expected to grasp the complexities of defense policy without any first-hand experience with the military?[3]

More general Congressional interest in who serves in the military was expressed early in the life of the All-Volunteer Force (AVF). In 1974, one year after the advent of the AVF, the Senate Armed Services Committee directed the Office of the Secretary of Defense (OSD) to submit annual reports on the composition of the active enlisted forces.[4] This series of reports describes recruits in terms of geographic distribution, education and aptitude, literacy, and demographic characteristics. It also looks at all enlisted personnel, describing their distribution by rank and occupation, education and aptitude, and demographics. All of the characteristics examined can be found in the automated personnel records maintained by the services and the Defense Manpower Data Center.

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[1] *Congressional Record*, February 3, 1987, S1615.

[2] "Bring Back the Draft," *International Security Review*, vol. 6, no. 3 (Fall 1981), p. 276.

[3] *Citizenship and National Service: A Blueprint for Civic Enterprise* (Washington, D.C.: Democratic Leadership Council, Inc., 1988), p. 25.

[4] See, for example, Office of the Assistant Secretary of Defense (Force Management and Personnel), *Population Representation in the Military Services Fiscal Year 1986* (August 1987).

The continuing Congressional interest in the social composition of the military may not yet have affected decisions on the defense budget. As suggested by the statements quoted above, however, Congressional concerns could influence decisions that will eventually have broad budgetary effects--decisions regarding the reinstitution of conscription, for example, or perhaps more likely, the enactment of some form of national service.

This study examines the social composition of the U.S. enlisted forces. It explores a variety of representation measures including, but not limited to, the demographic measures that form the basis of the OSD reports. It broadens, in two major ways, the view of representation reflected implicitly in the OSD reports. First, it derives indicators of the socioeconomic backgrounds of enlisted personnel through matches with census-based data on the areas in which they lived before enlisting. Although imperfect, this matching provides lower bounds on the extent of differences between military personnel and enlistment-age youths with respect to family income and other socioeconomic indicators. Second, recognizing the importance of the reserve components under today's Total Force concept, it includes those components in the analysis. The paid part-time personnel of the Selected Reserves--1.2 million men and women who would augment the 2.1 million active personnel in time of conflict--form the bulk of U.S. continental air defense, military airlift, and ground support forces, as well as sizable portions of Army combat units at brigade and higher levels.

A third departure of this study from most analyses of military representativeness is its examination of the forces shaping the composition of the career forces. Over half of today's enlisted personnel have served more than four years, and thus have reenlisted at least once; yet the characteristics of recruits are the most commonly used barometer of social composition for the military. In following a single cohort of enlistees until it reaches the early career years, rather than lumping all career personnel together, this study differs from others by recognizing that many of those personnel now serving entered the military when recruiting conditions were very different from what they are today.

This paper does not nominate a single "best" measure of military representativeness, nor does it offer alternative policy options. To offer alternatives would require deciding, first, the degree to which a match between military personnel and the general populace on some set of characteristics matters from the standpoint of social policy or national security, and second, whether the current match is close enough. These decisions are beyond the reach of an objective analysis. Because concerns about representation have so often been linked with calls for a draft, however, this paper does examine the likely composition of the enlisted forces under that alternative manpower procurement system.

CHAPTER II

THE ISSUE OF SOCIAL REPRESENTATION

Many arguments have been advanced for seeking a military that is broadly representative of American society. Most of these fall under one of three general headings: military effectiveness--meeting the need for personnel who are capable of performing military jobs; social equity--spreading the burden of national defense across all segments of society; and political legitimacy--involving the belief that the military ought to be a part of society rather than separate from it.[1] Under each heading, however, and particularly under the first two, there are arguments against "improving" the representativeness of today's forces as well as in favor of it.

MILITARY EFFECTIVENESS

During the 1970s, some critics of the All-Volunteer Force voiced calls for a more representative military that were based not on differences in demographic or social characteristics of recruits compared with the general youth population, but rather on differences among recruits in their usefulness to the services. Throughout most of the decade, the percentage of high school graduates among new recruits was lower than the high school graduation rate for all youth. In general aptitude, as measured by the Armed Forces Qualification Test (AFQT) given to all prospective enlistees, recruits were also below their civilian counterparts. These tendencies were particularly strong for the Army. In 1979, only 64 percent of Army recruits were high school graduates and, in part because of problems in the scoring of the AFQT, the Army accepted 46 percent in test score category IV, the lowest category legally acceptable (see box). Category IV encompasses the 10th through 30th percentiles of the general youth population. Because the AVF could not recruit a representative sample of youth, the critics could claim, military effectiveness was suffering.

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[1] Eitelberg appears to have been the first to organize the discussion of social representation into these three areas. See, for example, Mark J. Eitelberg, *Evaluation of Army Representativeness* (Alexandria, Va.: Human Resources Research Organization, ARI Technical Report TR-77-49, August 1977). A more comprehensive discussion of the issues appears in his doctoral dissertation, published as *Military Representation* (Alexandria, Va.: Human Resources Research Organization, October 1979).

The critics' arguments rested on the evident relationships between success in the military and the two measures of recruit quality--education and AFQT scores. First-term attrition--departure from the military before completing the initial obligation, whether for disciplinary or for other reasons--is roughly twice as common among recruits who have not graduated from high school as among high school graduates. This means that recruit cohorts with 60 percent graduates must be roughly 8 percent larger than cohorts with 90 percent graduates in order to yield the same number of completed first tours. The larger cohort size translates into higher personnel costs, higher training costs, and more career personnel taken away from operational duties to serve as trainers. Evidence that AFQT scores predict performance on military jobs is less compelling, but is mounting as new studies are conducted.[2]

Despite the importance of recruit quality in predicting success in the military, the case for a more representative sample of American youth as improving military effectiveness was not overwhelming even when quality was very poor in the late 1970s. Only the Army would have gained markedly from replacing its crop of recruits with one that more accurately mirrored the education and test scores of the general youth population. For the other services, such a change would have raised the number of recruits they received who had very high scores, but for the Navy and Air Force, it would also have increased the intake of low-scoring recruits.

The services' recruiting successes of the 1980s have largely defused the effectiveness argument for a representative force, except as a response to fears of worsening conditions ahead. The trend toward smaller numbers of enlistment-age youths, which has been under way

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[2] The AFQT, and the various components of the Armed Services Vocational Aptitude Battery from which AFQT scores are derived, are intended and validated primarily as predictors of training success. A survey of job-performance results appears in Congressional Budget Office, *Quality Soldiers: Costs of Manning the Active Army* (June 1986).

THE ARMED FORCES QUALIFICATION TEST

Since 1976, the standard military aptitude test has been the Armed Services Vocational Aptitude Battery (ASVAB). The ASVAB consists of a number of subtests--General Science, Numerical Operations, and Mechanical Comprehension, for example--the scores on four of which are combined to yield an Armed Forces Qualification Test (AFQT) score. AFQT scores, which range from 1 to 99, are intended to represent percentile scores for the general youth population. By law, people with AFQT scores below 10 may not be inducted (50 USC App. 454(a)) and by policy are not permitted to enlist. Each of the services applies stricter enlistment standards that combine test scores and education; a high school graduate with an AFQT score of 20 might be accepted, for example, whereas a nongraduate might require a score of 50 or greater. In addition, scores on ASVAB subtests are used to qualify applicants for specific jobs, and by some of the services as further enlistment criteria.

AFQT scores are divided into five broad categories, denoted by the roman numerals I through V, two of which are further divided. The categories, and their score ranges, are shown below:

AFQT Category	Score Range
I	93-99
II	65-92
IIIA	50-64
IIIB	31-49
IV	10-30
V	1-9

Problems in the scoring of the AFQT became increasingly apparent during the late 1970s. In July 1980, the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) reported on the problem in "Aptitude Testing of Recruits: A Report to the House Committee on Armed Services." The report stated that too many recruits were being placed in the higher categories and too few in category IV. In 1979, 5 percent of all recruits had been reported in category IV; when the scores were corrected, 30 percent were found to be in category IV. In the Army, 9 percent had been reported in category IV; the corrected number was 46 percent.

In 1980, the ASVAB was administered to a nationally representative sample of young people. The results were published by the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) in *Profile of American Youth: 1980 Nationwide Administration of the Armed Services Vocational Aptitude Battery* (March 1982). Previously, AFQT scores had been measured against the World War II population of men under arms. Following the 1980 administration, the reference population was changed to the 1980 youth population.

since 1980, may yet affect recruit quality, as may continued low unemployment rates or erosion in military pay relative to that in the private sector. Quality would have to fall very far, however, for a random sample of young people to outperform those the services are able to recruit voluntarily. In 1987, more than 90 percent of the recruits accepted by each of the four active services were high school graduates; a representative recruit force would include less than 80 percent. Under current policies, which preclude the enlistment of those scoring in category V on the AFQT, about 23 percent of enlistment-eligible youths fall in category IV, the lowest acceptable category; no service took in more than 10 percent from category IV in 1987. None of the services accepted appreciable numbers of nongraduates scoring below average on the AFQT in 1987; this group would make up more than 20 percent of a representative group of enlistees. Only at the high end of the aptitude range would a random sample of youths be better than today's recruits.

First raised as a reason for seeking recruits who are more representative of society, military effectiveness now argues more for maintaining the clearly unrepresentative nature, in terms of education and test scores, of the recruit cohorts being brought in under the AVF.

SOCIAL EQUITY

Defending the country has long been seen as an obligation of every American (or at least every male American). Before World War II, that meant simply being ready to take up arms in time of conflict. Since the war, U.S. national security strategy has called for the maintenance of large standing military forces, but not so large as to require the services of every able-bodied man. "Who shall serve when not all must serve?" has thus become a central question in the debate over the social composition of the military.

On the one hand, equity would seem to demand that everybody be equally at risk of having to serve (the lottery draft solution) or at least that all segments of society be equally represented among those who choose to serve (the volunteer solution). Fundamental to this argument is the assumption that military service imposes a burden upon those who serve. Indeed, burdensome aspects of military service are not hard to find, not least among them the risk of life in time of conflict.

On the other hand, military service confers certain benefits, which equity suggests should not be denied to satisfy some obscure goal of representativeness. These benefits--a secure job, training, postservice education assistance, and, perhaps, a "bridging environment" providing upward mobility--appeal most to those to whom society offers the fewest alternatives.

Both the benefits and the burdens of military service have played prominently in discussions of social equity in manpower procurement. The benefits of military service were largely denied to blacks before President Truman's 1948 executive order integrated the military. Later, critics of the selective-service draft argued that the burden of defending the country fell disproportionately on the poor and underprivileged; sons of more well-to-do parents found deferments easy to obtain. Now, ironically, despite the greater benefit offerings that are needed to maintain a purely volunteer military, the system is again criticized for drawing too heavily from the ranks of the underprivileged, for imposing unfairly on them the burden of defending the country. The All-Volunteer Force, some critics claim, has merely replaced a system of forced conscription that was biased against the poor with one of "economic conscription" in which those who enlist are those to whom society has presented no attractive alternatives.

The problem with the criticism of the current volunteer system as constituting economic conscription is that, absent a large increase in the size of the enlisted forces, any "remedies" would reduce the employment options open to the "conscripts." This argument has been made most strongly with respect to blacks. Robert Fullinwider, for example, notes:

> Whatever device we elect to suppress black volunteering, the net effect would be to deny to many young blacks the military opportunities they otherwise would choose. If our concern about the racial make-up of the military has been prompted by a fear that young blacks are being exploited, this outcome seems unattractive. The young blacks whom we worried were being "victimized" by the all-volunteer policy because they were "forced" to choose between service

> and unemployment are now reduced to one choice: unemployment.[3]

In an earlier article, two other writers took an even stronger position, stating that "any attempt to define the bases and limits of black participation in the military, even under the guise of altruism, should be suspect on the reasonable expectation (born of historical experience) that blacks would emerge as losers."[4]

Fullinwider notes that enlistment standards could be manipulated so as selectively to diminish the accession of blacks. Although there is no evidence that this course has consciously been pursued, a tightening of standards during the 1980s, in company with a more favorable recruiting climate, have reduced the percentage of active-duty enlistees who are black (see Chapter IV).

As these arguments make clear, equity-based calls for greater representativeness among military personnel may conflict with calls for greater equity in American society. Too narrow a focus on the burdens of military service is likely to lead to policy prescriptions that, either directly or indirectly, deny the benefits that military service offers to those who need them most.

The argument against efforts to improve representativeness in the name of social equity is greatly weakened if the supposed benefits of military service are illusory. A steady job? Roughly one-third of recruits are separated before completing their initial tours. Educational benefits? Many more recruits are attracted by these benefits, according to surveys, than will ever attend college; moreover, under the current program, recruits have to forgo pay to be eligible for the benefits, and many of those who do so will not use them. A bridging environment? Many recruiting advertisements have stressed job training, yet a recent Army study found that little of that training appears to be transferred to civilian employment.[5]

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[3] Robert K. Fullinwider, "The All-Volunteer Force and Racial Balance," in Fullinwider, ed., *Conscripts and Volunteers: Military Requirements, Social Justice, and the All-Volunteer Force* (Totowa, N.J.: Rowman and Allanheld, 1983), p. 183.

[4] Alvin J. Schexnider and John Sibley Butler, "Race and the All-Volunteer System: A Reply to Janowitz and Moskos," *Armed Forces and Society*, vol. 2, no. 3 (May 1976), p. 421.

This view of illusory benefits paints a grim picture: The poor and underprivileged are seduced by false promises into shouldering the burden of national defense. For this view to be true, however, the supposed hoax would have to persist despite the annual return to civilian life of hundreds of thousands of veterans. Recruits undoubtedly enter with some misperceptions, but whether this is any less true of young jobholders in the private sector is not clear. The same survey that showed little transfer of Army job training to civilian employment also indicated that most veterans were generally satisfied with their Army experience.[6]

Equity is an issue in the social composition of the military, not so much because the enlistment bargain is seen as unfair for any individual as because the force that results from many voluntary individual decisions is thought to be disproportionately drawn from a lower socioeconomic stratum. That stratum is seen as unfairly burdened, even though individual members of it are better off.

Perhaps the most important reason for the concern with social equity has been the identification of the burdened socioeconomic stratum with an easily recognized racial group that has been subjected to persistent discrimination: blacks. This concern, however, has not been widely voiced by black leaders.[7]

POLITICAL LEGITIMACY

"Can a political democracy expect to have a legitimate form of government if its military is not broadly representative of the larger

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5. Melvin J. Kimmel and others, "The One-Term Soldier: A Valuable Army Resource," *Soldier Support Journal* (October-December 1986), pp. 4-7. In a survey of 2,500 Army veterans who successfully completed their first terms of service, "approximately two-thirds of the entire sample (and 84 percent of those who rated the Army as not valuable) rated the job skills they learned in the Army as dissimilar or very dissimilar from those required in their current job" (p. 6).

6. Kimmel and others, "The One-Term Soldier," p. 5.

7. See, for example, the remarks of Representative Ronald V. Dellums in "Blacks in the Military: Are There too Many?" *Focus*, vol. 3, no. 8 (June 1975), p. 6.

society? Can a military force whose combat units are overweighted with a racial minority have credibility in the world arena?"[8] The arguments for improved social representation that are advanced under the heading of political legitimacy involve personal opinions to an even greater extent, perhaps, than those under the other headings. One reasonable person could answer the questions posed by Morris Janowitz and Charles Moskos above in the affirmative; another could answer in the negative. So it is with most of the issues under this heading: disagreements derive from differences of opinion, rather than from different interpretations of the same set of facts.

Among the assertions that have been made are:

- Effective civilian control of the military requires a military population that shares the basic values of American society.
- A professional army, as opposed to one with a preponderance of "citizen soldiers," is more likely to become involved in military adventurism.
- Separated in its views from the rest of society, the military could "operate as a powerful pressure group with a distinctive and relatively unified outlook and ideology."[9] Among its probable goals: bigger and more elaborate budgets.
- America needs future leaders who have felt the obligation to contribute to the national defense, and who can bring to their jobs of determining defense policy first-hand experience with the military.

The connection between these arguments and the social composition of the military as traditionally measured is not always obvious. The first three concerns above deal with the *attitudes* of those attracted to a *volunteer* military, which may or may not be correlated with their demographic or socioeconomic characteristics. Under this view, a volunteer military, even if it were perfectly representative on such measures as race or family income, would still tend to attract and retain disproportionately people with promilitary views.

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[8] Morris Janowitz and Charles C. Moskos, Jr., "Racial Composition in the All-Volunteer Force," *Armed Forces and Society*, vol. 1 (November 1974), p. 110.

[9] Eitelberg, *Military Representation*, p. 264. Eitelberg draws this point from Morris Janowitz, "The All-Volunteer Military as a 'Socio-political' Problem," *Social Problems*, vol. 22 (February 1975), pp. 432-449.

Concerns about political legitimacy seem to center more on the system of personnel procurement--draft versus volunteer--than they do on representativeness per se. They also seem to presume a large standing force, with substantial annual accession requirements. This makes their applicability to today's U.S. military somewhat questionable; if conscription was reinstated, not more than one in four of the males reaching enlistment age each year would need to serve, and unless volunteering was sharply curtailed less than 10 percent of males would be compelled to serve. Thus, conscription alone would not ensure that many of the country's future leaders would be called upon to serve, nor would it be likely to diminish substantially the career content of any service but the Army.[10]

The officer corps would be even less affected by a change in the procurement system for enlisted personnel, as officers would remain a professional group of volunteers. Politicization of the officer corps may be more of a threat to democratic institutions, according to one writer, than any general isolation of the military from civilian values.[11]

Several objections to legitimacy-based concerns over the social composition of the military have been made, including:

- No connection between military professionalism and military intervention in politics has been shown to exist.
- A link between the military and society can be maintained by other means than a representative military.

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[10] So-called "draft-induced volunteers," who made up substantial portions of the Navy and Air Force recruit cohorts during the Vietnam conflict, presumably would be rare with so small a likelihood of being drafted.

[11] Steven L. Canby, *Military Manpower Procurement: A Policy Analysis* (Lexington, Mass.: D.C. Heath and Company, 1972), cited in Eitelberg, *Military Representation*, p. 266.

- o Effective civilian control of the military can more readily be maintained through a formal chain of command than through making the military a mirror of society.[12]

One gauge of the importance of legitimacy issues under the All-Volunteer Force is how the public views the military and, in particular, the overrepresentation of blacks. A study based on a 1982 survey found that "American confidence in its military establishment is broad, and unaffected by the racial composition of the armed forces. . . . concern over the racial imbalance in the military mostly comes from an unrepresentative group which can be identified using classical models of racial prejudice."[13]

HOW TO MEASURE REPRESENTATIVENESS?

This study cannot resolve the difficult issues raised in discussions of the representativeness of U.S. military personnel. As noted above, such a resolution is beyond the reach of an objective analysis. Rather, this study seeks to present data that will help to inform the debate. Thus, it must confront the difficult problem of how to measure representativeness.

Any feasible system for the procurement of military personnel will yield a force that is not perfectly representative of the general population. Clearly, a cohort of recruits would be perfectly representative if it was selected through a lottery draft in which every enlistment-age youth had an equal chance of being selected, with no volunteering allowed. Just as clearly, such a system would never be instituted; at the very least, very low-scoring people would probably continue to be excluded from military service, as current law requires. This exclusion, and any exemptions or exclusions that might be granted to conscientious objectors, defense workers, convicted felons, or others, would tend to bias the composition of the group of recruits away from that of the population from which it was drawn. Moreover, the idealized lottery draft would merely determine the composition of recruits; the normal processes of attrition and reenlistment would inevitably determine the composition of the career force.

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[12] These arguments are summarized in Martin Binkin and Irene Kyriakopoulos, *Youth or Experience? Manning the Modern Military* (Washington, D.C.: The Brookings Institution, 1979), pp. 45-47.

[13] A. Wade Smith, "Public Consciousness of Blacks in the Military," *Journal of Political and Military Sociology*, vol. 11 (Fall 1983), p. 281.

Given the impossibility of securing a military force that perfectly mirrors the general population, three questions arise:

- What observable (or indirectly observable) characteristics of individuals should be used in comparing military and general populations?
- What populations should be compared?
- How close is close enough?

What Characteristics?

The three reasons given earlier for concern about the social composition of the military--military effectiveness, social equity, and political legitimacy--do not provide a consistent indication of what constitutes a representative force. Considerations of military effectiveness have in the past been behind calls for personnel who better matched the civilian population in terms of education and test scores--predictors of performance. Discussions of social equity, in contrast, tend to focus on socioeconomic factors or, sometimes, on the military participation of the racial or ethnic groups that are perceived as being economically disadvantaged. Political legitimacy is most commonly associated with geographic representation, because of presumed regional differences in attitudes toward the military.[14] Yet none of these indicators is without ambiguity. For example, one might argue that equity requires accepting more non-high-school graduates or low-scoring individuals into the AVF.

Eitelberg has pointed out the fruitlessness of selecting any particular measure as *the* measure of representativeness, stating that "the determination of which groups or characteristics are important or 'relevant' varies with time and place; and the choices are essentially products of the political environment--dependent first and foremost on

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[14] Eitelberg, *Military Representation*, p. 267.

political expressions and interpretations of national needs and values."[15]

Past studies do not provide a good guide as to what characteristics are most important. The annual Department of Defense (DoD) reports take the implicit approach that the individual information routinely collected in the services' automated personnel files is sufficient, although this information includes nothing about enlistees' family backgrounds.[16] A recent study examined socioeconomic measures, but did so from a particular perspective (does the United States have an Army of the "underclass"?) that influenced the choice of characteristics.[17] The more comprehensive studies available were performed in the 1970s, when concerns about the composition of the military were somewhat different from what they are today.[18] Nonetheless, the attempts of these and other studies to go beyond the demographic characteristics recorded in the military's automated personnel files reinforce the impression that concerns about the social composition of the military cannot be addressed by a one-dimensional classification of the population into small numbers of distinct groups. Certainly, the high percentage of blacks among Army recruits indicates that Army recruits do not represent the general youth population well, but is this a sign that economic conscription is at work or does it reflect some other factor, such as the relative lack of overt racial discrimination in the military?

The decision as to what characteristics are most important must ultimately lie with the observer. This study presents a variety of measures in an attempt to satisfy the interests of most readers. It focuses on socioeconomic background primarily because these characteristics have received little attention, especially during the 1980s when recruiting conditions have been so good.[19] For completeness, it also presents demographic comparisons.

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[15] Eitelberg, *Military Representation*, p. 90.

[16] See, for example, Office of the Assistant Secretary of Defense (Force Management and Personnel), *Population Representation in the Military Services Fiscal Year 1986* (August 1987). DoD has begun to survey applicants to determine their socioeconomic background.

[17] Sue E. Berryman, *Who Serves? The Persistent Myth of the Underclass Army* (Boulder and London: Westview Press, 1988).

[18] Richard V. L. Cooper, *Military Manpower and the All-Volunteer Force* (Santa Monica: The RAND Corporation, R-1450-ARPA, September 1977), and Eitelberg, *Military Representation*.

What Populations?

Problems of defining the relevant population groups occur on both the military and civilian sides of the comparison.

Military Populations. On the military side, the questions that arise in determining a comparison group include:

- Both part-time reserves and active-duty personnel, or actives only?
- All military occupations, or selected ones separately (for example, those directly involved in combat)?
- All personnel, or recruits only?
- All services together, or individually, or only the Army?
- Demographic groups (racial, for example) together, or separately?
- Enlisted personnel only, or officers as well?

This study departs from previous practice by examining both active-duty personnel and the part-timers who staff the Selected Reserve components. The 1974 Congressional request to which the annual DoD reports respond asked only for an examination of active-duty personnel. Given the example of the Vietnam conflict, in which few reserve personnel were called to serve, this limitation of that request is understandable. Under the Total Force concept of today, however, a large-scale conflict would quickly involve the Reserve and

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[19] In examining socioeconomic characteristics, the study does not escape the practical limitations of time and data, relying primarily on census-based measures. A DoD survey, now under way, will explore family characteristics of military applicants.

National Guard components.[20] Thus, if the question of who will do the fighting is an issue for the social composition of the military, ignoring the reserve components would seem to be a mistake.

The question of who will do the fighting can be taken to the other extreme. In any conflict, most casualties will occur among personnel in combat specialties. Thus, it may be appropriate to look separately at these occupations, or perhaps at all personnel serving in combat units (however defined). Taken even further, in low-intensity conflicts certain units would be more likely to be deployed than others--the 82nd Airborne Division, for example--so that a separate evaluation of the composition of the rapid-deployment units might conceivably be appropriate. Evaluations of occupation-specific social composition, however, would require detailed examinations of service job assignment, retraining, and promotion policies, which were beyond the scope of this study.

The question of whether to examine only entering personnel or some cross section of all personnel is largely resolved by the simple observation that, apart from the use of quotas, there is little that the services can do to determine who stays and who leaves. Compulsion, which would make a truly representative recruit force at least theoretically achievable, has not been applied to retention decisions except in time of war. Higher pay might enable the services to be more selective in deciding who could reenlist, but it is not clear that this would make the career force more representative of the civilian population rather than, perhaps, simply of the most able of the disadvantaged. Nonetheless, concerns exist about the composition of the career force, both because of the effect that composition may have on who decides to enlist and because career-force composition may be determined in part by discriminatory practices in retention, promotion, and occupational assignment.[21] This paper takes a limited look

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[20] Indeed, the standby conscription plan currently in effect is based on the presumption that a large-scale conflict would require resumption of the draft. To some extent, then, the composition of the volunteer military is irrelevant, although it would be called upon to do the initial fighting. The shorter the period of conflict is expected to be, the more important is the composition of the existing forces.

[21] One view of discrimination in Army promotions is provided by David R. Segal and Peter G. Nordlie, "Racial Inequality in Army Promotions," *Journal of Political and Military Sociology*, vol. 7 (Spring

(Continued)

at the forces shaping the composition of the career force, following a one-year cohort of enlistees through their first six years of service.

The special interest in the social composition of the Army seems to derive from two factors. First, under the selective service draft of the 1950s and 1960s, only the Army relied significantly on draftees to fill its need for recruits.[22] Thus, only the Army would be directly affected by a return to conscription, the most obvious remedy for an unrepresentative force. (Draft-induced volunteers, however, undoubtedly played an important role in shaping the composition of the other services.) Second, the Army was the service that, during the late 1970s, suffered the most severe recruiting difficulties. Military effectiveness was an issue in the composition of the military primarily because the Army was unable to secure recruits who were representative of the quality (education and test scores) of the general youth population. Reflecting the special interest in the Army, many of the comparisons that this paper makes are presented separately for the Army and for all services combined.

A different sort of issue arises with the division of a given group along demographic lines. Given that enlisted recruits are disproportionately black, for example, is it reasonable to expect all recruits together to match the general youth population on socioeconomic measures despite the obvious black/white differences in those measures? Or to turn the argument around: if the military appeals more to those with lower socioeconomic backgrounds, is the racial composition of recruits a separate issue? The answer to these questions would seem to depend, in part, on whether the overrepresentation of blacks in the military is explainable solely on socioeconomic grounds. (Even if it is, however, racial disproportions still raise concerns about social equity and political legitimacy.) In response to these questions and concerns, this study examines differences between blacks and whites in the

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21. Continued

1979), pp. 135-142. For an examination of occupational assignments see, for example, Gary J. Zucca and Benjamin Gorman, "Affirmative Action: Blacks and Hispanics in U.S. Navy Occupational Specialties," *Armed Forces and Society*, vol. 12, no. 4 (Summer 1986), pp. 513-523.

[22] Office of the Assistant Secretary of Defense (Comptroller), Directorate for Information Operations, *Selected Manpower Statistics* (April 15, 1971), p. 46. A notable exception is the Marine Corps, which in fiscal year 1952 took in twice as many inductees as volunteers, and in fiscal years 1966, 1968, and 1969 required smaller numbers of draftees--less than one-quarter of its total recruits.

socioeconomic backgrounds of recruits compared with those of enlistment-age youth.

Civilian Populations. On the civilian side, the appropriate comparison group is usually suggested by the military population being examined. It seems unreasonable, for example, to expect the recruit population to be no more than 12 percent black--the percentage in the general civilian population--when nearly 15 percent of enlistment-age youths are black.

One area in which the appropriate comparison groups are not obvious is that of officers and enlisted personnel. One can argue that the enlisted ranks cannot be expected to attract significant numbers of college-bound youths because those people, if they chose to serve, would tend to do so after they completed college, and then as officers. This argument would suggest that officers should be combined with enlisted personnel if a comparison with the general youth population is to be made. Conversely, it would suggest that if enlisted personnel alone are to be examined, they should be compared with the non-college youth population.[23] For the socioeconomic comparisons that are the focus of this paper, however, it is very difficult to include officers, and relevant data on non-college youth are not available. For these reasons, the paper generally compares enlisted personnel with all enlistment-age youth.

One prominent proponent of a representative military has implied that the appropriate comparison group for enlisted recruits is the general youth population, rather than any occupational or educational subgroup.[24] He states that under the draft, "middle-class and upwardly mobile youth helped enrich the skill level and commitment of military units in peace as well as in war." The military's role as a "remedial organization for deprived youth" also depends, he says, "on the military not being defined as a welfare agency or an employer of last resort. It will be increasingly difficult for the Army to avoid such characterization, even if unfair, unless *enlisted membership* reflects more of a cross section of American youth" (emphasis added).[25]

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[23] Eitelberg sees this question as involving a conflict between two views of the military, the "occupational model" and the "institutional model." Under the former view, he argues, the distinction between enlisted and officer positions is analogous to that between blue-collar and white-collar jobs in the civilian sector. The institutional model describes military service as a universal obligation of citizenship, and does not separate the organization along occupational or class lines. The occupational model would imply that enlisted personnel should be compared with civilian blue-collar workers, the institutional model that they should be compared with all young adults. "Entirely *opposite* conclusions," Eitelberg notes, "can thus result in evaluations of the *same* military data--depending on how one sees the military (or defines its purpose) and selects the various population standards for comparison." Mark J. Eitelberg, "Representation and Race in America's Volunteer Military" (Monterey, Calif.: Naval Postgraduate School, NPS54-86-010, September 1986), pp. 14-15.

Like most issues in the social composition of the military, the question of what groups to compare is not amenable to objective analysis. Any choice will satisfy some observers and dissatisfy others. In addition, the set of comparisons that is feasible given time and data limitations will always exclude some that would interest some readers.

How Close Is Close Enough?

Even if there were general agreement that one particular characteristic is the only one relevant for determining whether some military population group is "representative" of some civilian group, the question would remain how close a match between military and civilian populations is sufficient. The 5 percent difference in, say, average family incomes that one person might find perfectly acceptable would appear to another as sufficient reason to change the personnel procurement system. Statistical measures of closeness between two distributions are available, of course, but they merely summarize the differences and may have little meaning to a nonexpert. The impartial analyst, therefore, has little to offer on this crucial question.

The analyst can affect the *perception* of how great a difference is present, either deliberately or inadvertently. A relevant example is DoD's reporting of geographic representation, which compares the distribution of recruits across states with the distribution of 18- to 21-

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[24] See, for example, Charles C. Moskos, "Social Considerations of the All-Volunteer Force," in Lt. Gen. Brent Scowcroft, ed., *Military Service in the United States* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1982), pp. 129-150.

[25] Moskos, "Social Considerations of the All-Volunteer Force," p. 136.

year-olds.[26] New York, one learns, has 7.4 percent of the youth population and contributes 6.0 percent of DoD recruits, whereas Ohio has 4.4 percent of the youth population and contributes 5.4 percent of recruits. The difference in each state--roughly one percentage point--may not seem very large. But the difference would appear much larger if the report stated that the enlistment rate in Ohio is roughly *50 percent greater* than it is in New York, which is implied by the population percentages. There is no cause to impugn DoD's motives: comparing percentage distributions seems a perfectly reasonable procedure, and any reader could make the calculation of relative enlistment rates. Yet the difference in the impressions created by the two procedures shows how important the role of the analyst is in shaping perceptions.

This study makes no attempt to assess the importance of observed differences between military and civilian populations.

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[26] Office of the Assistant Secretary of Defense (Force Management and Personnel), *Population Representation*, Table II-4, "Comparison of State Percentage Distribution of FY 1986 NPS Enlisted Accessions, by Service, with 1986 18 to 21 Year Old Population," pp. II-9, II-10.

CHAPTER III

DEMOGRAPHIC CHARACTERISTICS OF RECRUITS

The discussion in Chapter II noted, in passing, some of the more obvious demographic differences between military and civilian populations. This chapter provides more detailed information.[1] Like Chapter IV, it focuses on those who first entered the military in one of two years: fiscal year 1980 and fiscal year 1987. Fiscal year 1980 was a very poor year for recruiting, in part because the incorrectly scored military entrance test made many recruits look better than they actually were, whereas 1987, the most recent year for which data were available for this study, was among the best recruiting years of the All-Volunteer Force as measured by recruit quality.

Notable differences between recruit and youth populations appear on most of the demographic measures. Blacks are overrepresented among active-duty recruits, although less so in 1987 than in 1980. By policy, females are substantially underrepresented. Today's recruits are also drawn disproportionately from the ranks of high school graduates and of those who score well on the military entrance examination. Geographic representation is, for the most part, fairly uniform, albeit with a few conspicuous exceptions. The same patterns apply, in varying degrees, to recruits entering the various components of the Selected Reserves.

RACE

Much of the discussion of the military's social composition has focused on race and, in particular, on the overrepresentation of blacks, the largest of the minority racial groups. In 1987, blacks made up almost 20 percent of nonprior-service (NPS) recruits for the four active services together (see Table 1).[2] (NPS recruits are those who enter without any previous service in the U.S. military.) In comparison, less than 15 percent of enlistment-age youths are black.[3] The tendency during the 1980s, however, has been toward lesser representation of blacks: between 1980 and 1987, the percentage of blacks among NPS recruits fell by almost three points, in contrast to the rise of almost one percentage point among 18-year-olds. The percentages both of whites and of other races increased.

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[1] The series of Defense Department reports on population representation, already noted, provide somewhat greater depth and more historical detail.

Most of the change in racial composition between 1980 and 1987 was accounted for by the Army; among Army recruits, the share of blacks fell by more than six percentage points. The percentage of blacks also fell sharply in the Marine Corps, the smallest service. The Navy, in contrast, which had long had the smallest minority participation, increased its percentage of blacks by nearly one-half.

An examination of males and females separately reveals that the overall decline in the participation of blacks was largely a function of the trend among males, reflecting the predominance of males among active-duty enlistees (86 percent in 1980 and 87 percent in 1987). In every service but the Army, minority participation among females increased between 1980 and 1987. These increases were large enough to offset the opposite change in the Army, resulting in a slight decline for all services combined in the percentage of white recruits among females.

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[2] Throughout this and the following chapters, the term "recruit" should be understood to mean nonprior-service recruit. For the active components, this limitation raises no substantial issues, because most annual active-duty accessions are nonprior-service (NPS). The reserve components, however, rely on prior-service personnel for much of their annual enlisted requirements. Most of these have served on active duty, while others have interrupted their reserve service or transferred from another reserve component. Thus, examining only NPS accessions to the reserve components *may* give a distorted picture of the social composition of the reserve forces (the "may" is emphasized because this is only a possibility, not an established fact). The alternative, however, is to count some individuals two or more times: once when they first enter the military, and again when they reenter. This study looks instead at all individuals who first entered in a given year, in effect examining annual flows into the military.

[3] Department of Commerce, Bureau of the Census, "United States Population Estimates, by Age, Sex, and Race: 1980 to 1987," Current Population Reports, Population Estimates and Projections, Series P-25, No. 1022, March 1988.

TABLE 1. RACIAL DISTRIBUTION OF ACTIVE-DUTY RECRUITS WITH NO PRIOR SERVICE, BY SERVICE, SEX, AND ACCESSION YEAR (In percent)

Race	Male 1980	Male 1987	Female 1980	Female 1987	Total 1980	Total 1987
Army						
White	66.4	73.1	54.9	60.5	64.7	71.4
Black	28.1	21.8	39.6	34.7	29.7	23.5
Other	5.6	5.2	5.4	4.8	5.5	5.1
Navy						
White	83.2	77.9	81.4	70.1	82.9	77.1
Black	12.9	17.6	15.2	26.0	13.3	18.5
Other	3.9	4.4	3.3	8.9	3.8	4.4
Marine Corps						
White	71.8	75.2	74.0	71.3	72.0	75.0
Black	23.2	17.8	21.5	21.6	23.1	18.0
Other	4.9	6.9	4.5	7.0	4.9	6.9
Air Force						
White	82.5	82.7	80.9	76.6	82.2	81.6
Black	14.3	12.8	16.0	19.3	14.6	14.0
Other	3.2	4.4	3.1	4.1	3.2	4.4
All Services						
White	73.8	76.4	68.8	67.6	73.1	75.2
Black	21.5	18.5	26.9	27.8	22.3	19.7
Other	4.7	5.1	4.2	4.5	4.6	5.0

SOURCE: Congressional Budget Office from Defense Manpower Data Center data.

Minorities have made up a larger percentage of the active enlisted force than they have of recruits, reflecting their higher share of enlistments in the early 1980s and their higher reenlistment rates.[4]

The pattern of racial composition among recruits entering the paid part-time reserves (the Selected Reserves) is similar to that for the active services (see Table 2). There are, however, notable exceptions within the six reserve components.[5] Minority participation is lower in the two National Guard components than in the corresponding active components, and is also much lower than in the corresponding Reserve components (sources of this difference are examined in Chapter IV). In addition, the Navy Reserve did not share the growth in minority recruitment of the active Navy. The Army Reserve, however, and to an even greater extent the Air Force Reserve, had higher percentages of minority recruits than did the corresponding active services.

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[4] Office of the Assistant Secretary of Defense (Force Management and Personnel), *Population Representation in the Military Services Fiscal Year 1986* (August 1987), p. III-5.

As was the case for the active services, the minority percentages in the reserve components were higher among females than among males. In all the reserve components together, roughly 35 percent of female NPS recruits in 1987 were nonwhite, compared with 22 percent of males.

SEX

Females accounted for less than 13 percent of active-duty recruits in 1987, reflecting a policy that bars women from many military jobs (see Table 3). The trend toward greater recruitment of women into the active forces, which had been an important feature of the late 1970s, largely ended in the early 1980s. Only in the Marine Corps did the female percentage of recruits continue to rise in the 1980s; in the other three services, recruitment of females peaked between 1979 and 1981.[6] For the four active services combined, the percentage of females among NPS recruits fell by more than one point between 1980 and 1987.

Reflecting the relative predominance of support roles filled by enlisted personnel in the various active services, the female percentage was highest in the Air Force and lowest in the Marine Corps. A similar pattern appears among the reserve components: the Army Guard, comprising combat units, recruits few women, whereas the Army Reserve, which serves support roles, recruits a higher percentage of women than the active Army.

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5. The Selected Reserves are organized into six components: the Army National Guard and Air National Guard, which have responsibilities to the states as well as to the federal government, and Reserves for each of the four active services.

6. Ibid., p. II-23.

TABLE 2. RACIAL DISTRIBUTION OF SELECTED-RESERVE RECRUITS WITH NO PRIOR SERVICE, BY SERVICE, SEX, AND ACCESSION YEAR (In percent)

Race	Male 1980	Male 1987	Female 1980	Female 1987	Total 1980	Total 1987
Army National Guard						
White	78.3	79.8	67.2	68.8	77.3	79.0
Black	19.3	16.3	29.6	26.8	20.3	17.1
Other	2.4	3.8	3.2	4.4	2.5	3.9
Army Reserve						
White	67.3	72.8	58.9	55.3	64.7	67.9
Black	27.7	22.3	36.9	40.2	30.6	27.3
Other	3.9	4.9	4.2	4.4	4.7	4.8
Navy Reserve						
White	81.1	84.2	a	81.3	81.1	83.6
Black	14.2	12.0	a	16.0	14.1	12.8
Other	4.8	3.8	a	2.7	4.8	3.6
Marine Corps Reserve						
White	b	73.5	b	70.7	b	73.5
Black	b	18.5	b	25.9	b	18.6
Other	b	8.0	b	3.4	b	7.9
Air National Guard						
White	c	89.0	c	83.7	c	87.6
Black	c	8.2	c	13.4	c	9.5
Other	c	2.8	c	2.9	c	2.9
Air Force Reserve						
White	74.1	71.5	65.0	58.6	71.3	67.2
Black	21.8	24.1	32.3	37.7	25.1	28.6
Other	4.1	4.5	2.7	3.7	3.6	4.2

SOURCE: Congressional Budget Office from Defense Manpower Data Center data.

a. Too few recruits in this category for meaningful statistics.

b. 1980 Marine Corps Reserve data on race were apparently miscoded.

c. No 1980 data were available for the Air National Guard.

TABLE 3. PERCENTAGE OF FEMALES AMONG RECRUITS WITH NO PRIOR SERVICE, BY SERVICE, ACCESSION YEAR, AND RACE

Service	1980 White	1980 Black	1980 Other	1980 All Races	1987 White	1987 Black	1987 Other	1987 All Races
Active Components								
Army	12.0	18.9	13.8	14.1	11.5	20.0	12.7	13.5
Navy	13.9	16.3	12.4	14.2	9.8	15.2	9.6	10.8
Marine Corps	5.5	5.0	5.0	5.4	5.1	6.4	5.4	5.3
Air Force	18.9	21.0	18.3	19.2	17.4	25.5	17.4	18.5
Active Total	13.4	17.1	13.1	14.2	11.6	18.2	11.7	12.9
Selected Reserve Components								
Army National Guard	8.3	14.0	12.5	9.6	6.5	11.7	8.6	7.5
Army Reserve	29.1	38.5	28.3	32.0	22.6	40.9	25.7	27.7
Navy Reserve	0.1	0.0	0.0	0.1	18.9	24.3	14.4	19.4
Marine Corps Reserve	a	a	a	0.1	2.0	2.9	0.9	2.1
Air National Guard	b	b	b	b	24.4	35.8	26.1	25.5
Air Force Reserve	28.4	40.0	23.4	31.1	29.1	44.0	29.4	33.4
Reserve Total	14.5[c]	24.7[c]	19.7[c]	16.1	14.0	26.2	14.8	16.4

SOURCE: Congressional Budget Office from Defense Manpower Data Center data.

NOTE: Tabulations may not agree exactly with official Defense Department data.

a. 1980 Marine Corps Reserve data on race were apparently miscoded.

b. No 1980 data were available for the Air National Guard.

c. Excludes Marine Corps Reserve.

Females have made up a growing portion of all active-duty enlisted personnel during the 1980s: 10 percent in 1986, compared with 8.5 percent in 1980.[7] This percentage should continue to rise, but will probably remain below the rate among recruits because females tend to reenlist at lower rates than do males.

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[7] Ibid., p. III-5.

RECRUIT QUALITY

The biggest changes that have taken place in the characteristics of recruits during the 1980s have been in the measures of quality: education and test scores. Figure 1 shows how dramatic these changes have been.

Roughly three out of four American youths graduate from high school. In 1980, less than 70 percent of active-duty recruits and only 55 percent of Army recruits had high school diplomas. That these figures may compare favorably with the graduation rate among people who do not go directly from high school to college would hardly have been comforting to the services. As noted earlier, nongraduates are twice as likely as graduates to be discharged from the military before completing their initial commitments, which means that a recruit cohort with many nongraduates must be larger than one composed primarily of graduates in order to provide the same number of trained personnel.

By 1987, recruits without high school diplomas were in a small minority: about 9 percent of Army recruits and 6 percent of recruits for the four active services combined. Improvements in the Selected Reserve components were less impressive, but the percentage of nongraduates fell by nearly half.

Scores on tests administered to all entering recruits showed equally remarkable improvement. About half of all high school graduates would score in AFQT categories I and II (65th through 99th percentiles for the general youth population). Of the graduates who entered the Army in 1980, however, only 19 percent scored in the top two categories (28 percent in the four active services combined). The active services still lagged the youth population on this measure in 1987 (about 40 percent of graduates in I and II), but the percentage of graduates in categories I through IIIA (the top half of the general youth population) had risen to within one point of the percentage among all high school graduates. At the lower end of the scale, people in category IV (the lowest acceptable category, comprising the 10th

Figure 1.
Distributions of Recruit and Youth
Populations by Education and AFQT Categories, 1980 and 1987

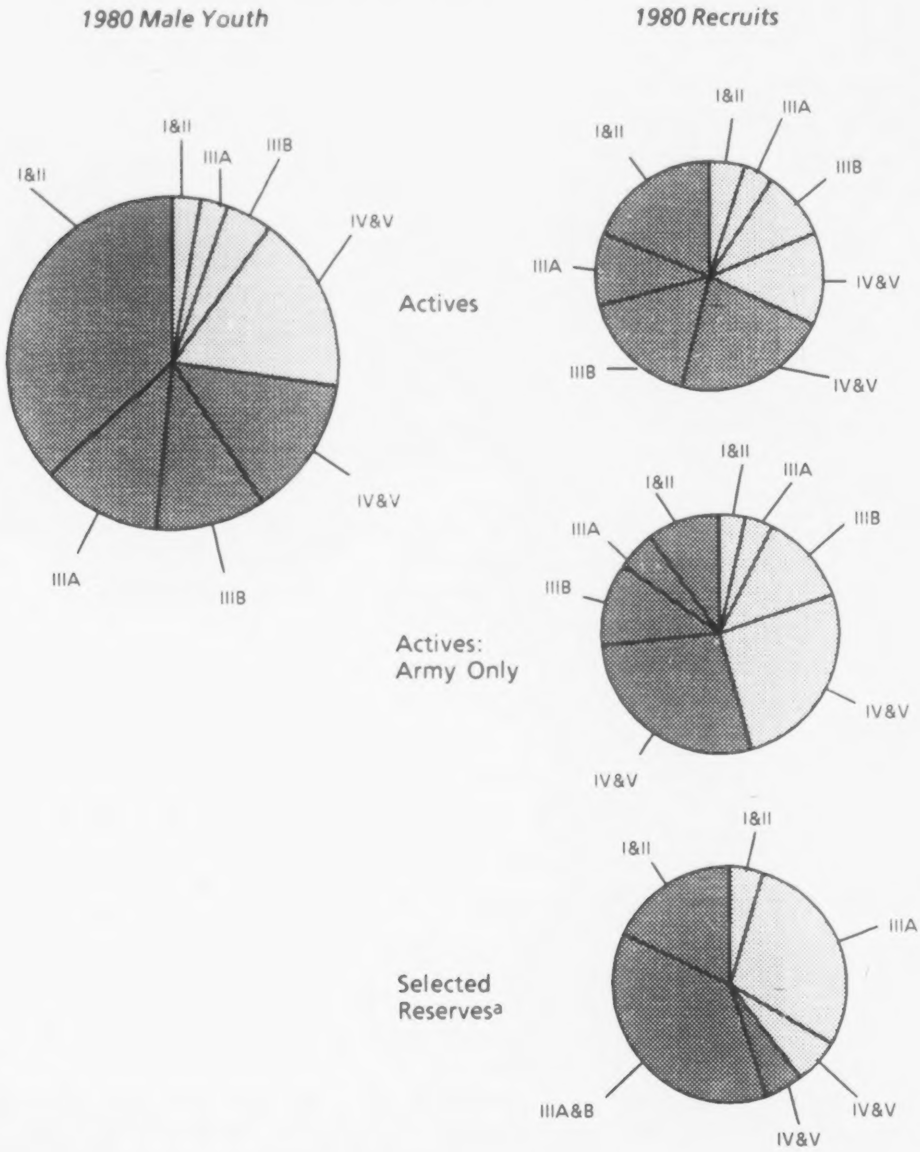
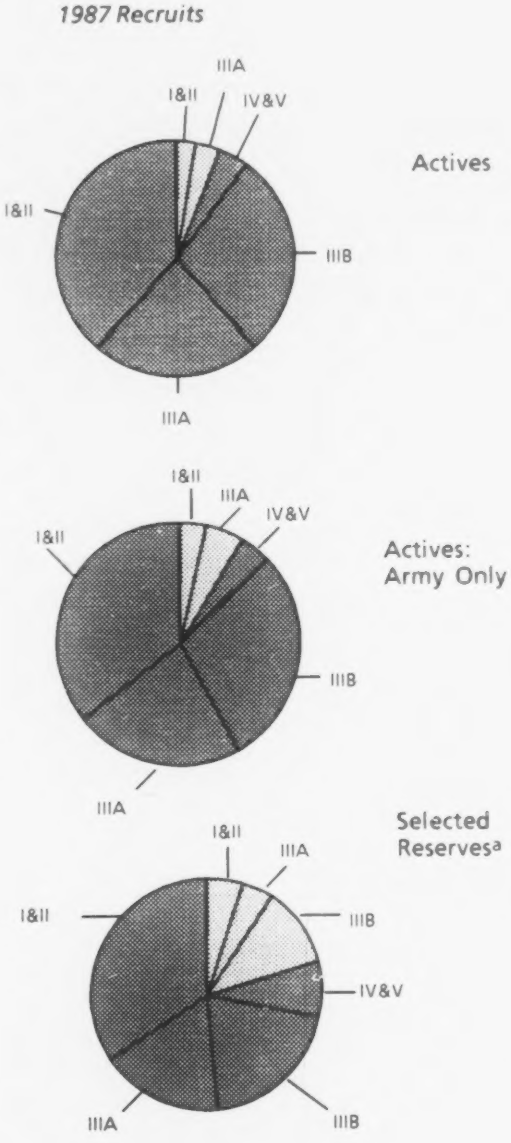


Figure 1.
Continued



SOURCE: Congressional Budget Office, from Defense Manpower Data Center data.

NOTE: The percentile scores for the Armed Forces Qualification Test categories are: I--93 to 99; II--65 to 92; IIIA--50 to 64; IIIB--31 to 49; IV--10 to 30; V--1 to 9.

a. For reserves, high school graduates include recruits in high school at the time of their accession.

through 30th percentiles) had gone from being a majority of Army recruits in 1980--even though they comprised only about one in five youths--to only 4 percent of Army recruits in 1987.

Military recruits in 1980 were not representative of the general youth population in terms of education and test scores. Recruits in 1987 were no more representative. What changed was the nature of the difference. In 1980, the services were forced to rely disproportionately on nongraduates and low-scoring individuals; in 1987, they disproportionately excluded these same groups. In 1980, an important concern was that an unrepresentative force could not provide adequate military effectiveness; in 1987, the unrepresentative force could be criticized on social equity grounds as denying the benefits of service to a large portion of the youth population.

GEOGRAPHIC DISTRIBUTION

The annual DoD reports on population representativeness compare the distribution of active-duty recruits' home states with the distribution across states of the general youth population. A recent edition concludes: "The data assembled . . . should dispel any concerns about developing regional bias."[8]

Figure 2 generally supports the DoD conclusion, although some notable differences across states are apparent. The figure shows 1987 active-duty enlistment rates (total NPS enlistments divided by youth population) by state, measured relative to the national average rate.[9] The darkest shading indicates states with enlistment rates more than 50 percent above the average; the lightest shading indicates states with enlistment rates less than 80 percent of the average (no state's rate was less than half the average).

A majority of states (31) had enlistment rates within 20 percent of the national average (that is, between 80 percent and 120 percent).

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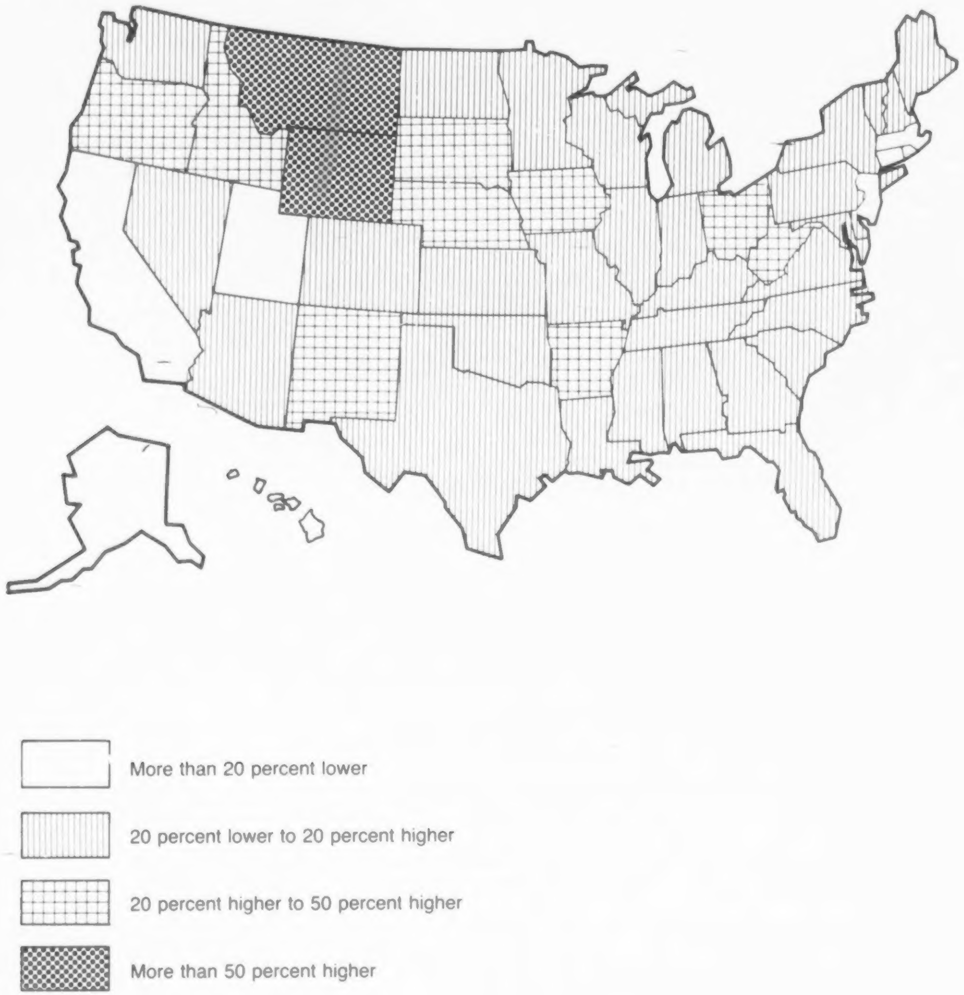
[8] Ibid., p. II-5.

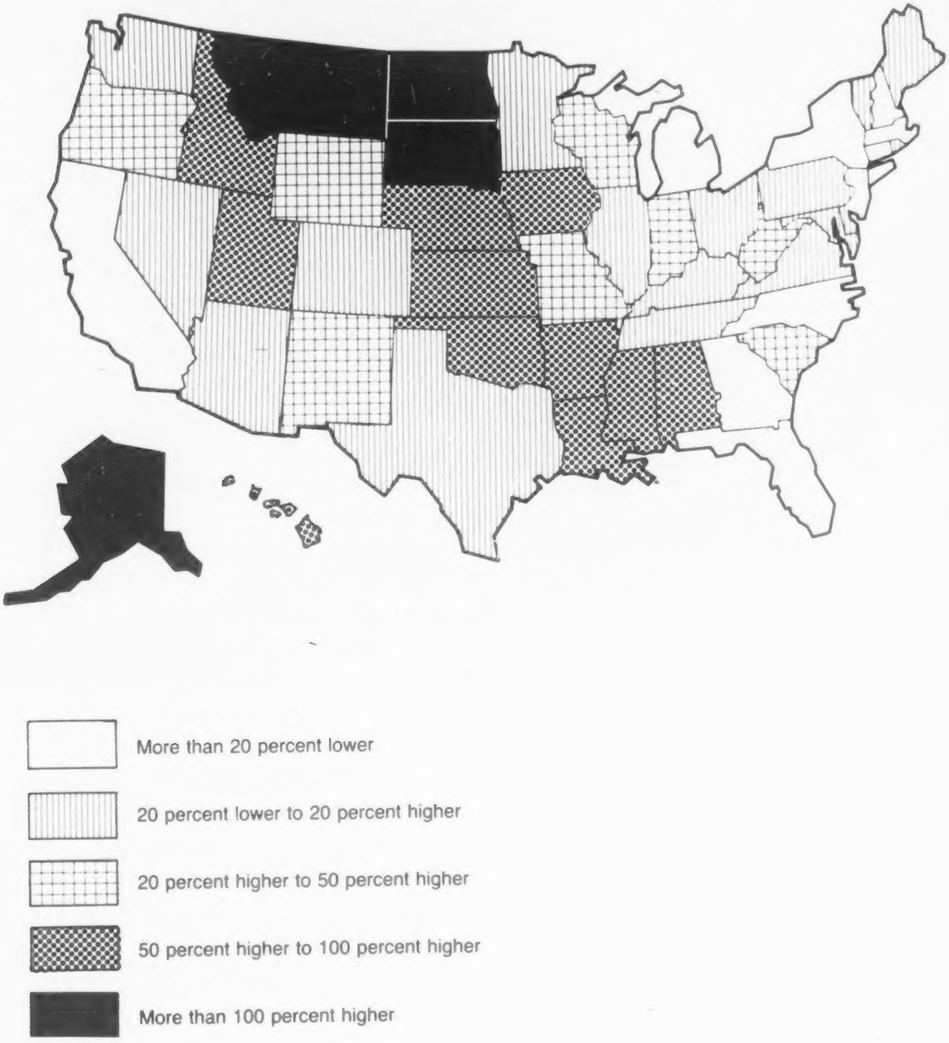
[9] The youth population data include college attendees in their home states, rather than the states of the schools in which they are enrolled.

Figure 2.
1987 Active-Duty Enlistment Rates, by State, Relative to the National Average


More than 20 percent lower
20 percent lower to 20 percent higher
20 percent higher to 50 percent higher
More than 50 percent higher

SOURCE: Congressional Budget Office, from data supplied by the Defense Manpower Data Center.

Figure 3.
1987 Enlistment Rates for the Selected-Reserve, by State, Relative to the National Average


More than 20 percent lower
20 percent lower to 20 percent higher
20 percent higher to 50 percent higher
50 percent higher to 100 percent higher
More than 100 percent higher

SOURCE: Congressional Budget Office, from data supplied by the Defense Manpower Data Center.

The outliers on the low end consist of four eastern-seaboard states, of which New Jersey is the most populous; California; Alaska and Hawaii; and Utah. The four eastern states were the lowest of these, with enlistment rates ranging from 56 percent to 63 percent of the national average. Most of the states at the upper end have small populations; Ohio, the most populous, alone accounted for nearly 40 percent of the enlistments from the group (although its enlistment rate was only 24 percent above average). High enlistment rates are also prevalent in a band of more sparsely populated states stretching from Iowa to Oregon.

Enlistment rates for the reserve components were more diverse (see Figure 3). Whereas only two states had active-duty enlistment rates exceeding the national average by more than 50 percent, 15 states fell in that range for selected-reserve enlistments. Four of these--Hawaii, Kansas, Utah, and Alaska--had below-average enlistment rates for the active services. The list of states with well-below-average enlistment rates was also longer than for the active services, and included three states with above-average enlistment rates for the active services. The states that reversed their positions from the active-duty listings apparently were unusual in their mix of active-duty and reserve enlistments, rather than in their overall enlistment propensities. Some states, however, retained their active-duty positions: California's reserve enlistment rate was only 56 percent of the national average, and the four northeastern states appeared again in the bottom group.[10]

Different shading patterns could, of course, give different impressions of the geographic representation of enlistees. Narrowing the band around the average to 10 percent above and below, for example, would add to the list of above-average states for active-duty enlistment rates a group of populous midwestern states including Indiana, Michigan, and Wisconsin. To the below-average group would be added New York, Virginia, and Maryland, as well as some smaller states.

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[10] California's low enlistment rate for both active and reserve components might be explained, in part, by the inclusion of illegal aliens in the census-based counts of youth populations.

CHAPTER IV

MEASURES OF SOCIOECONOMIC STATUS FOR ENLISTED RECRUITS

Is the U.S. military predominantly composed of the economically disadvantaged in American society? Measures of race, sex, and geographic variation reveal important aspects of representation in the military, but they do not answer this key question posed by some critics of the volunteer military. This chapter assesses socioeconomic representation--how recruits compare with the general youth population in terms of the family incomes, education levels, and occupational mix in their home areas.

The three measures of socioeconomic status yield a fairly consistent picture of modest differences between the home areas of enlisted recruits and of the general youth population. Family incomes in recruits' home areas are somewhat lower than in those of all enlistment-age youth. Black and white recruits, however, tend to come from different strata within their respective populations. These results are corroborated by data on education levels. The final section of the chapter explores the causes of the black/white differences and of the significant changes in recruit backgrounds between 1980 and 1987. Rising enlistment standards, it turns out, have contributed importantly both to the changes in racial mix among recruits shown in the previous chapter and to the changes in socioeconomic background shown below.

The phrasing of the conclusions about socioeconomic status in terms of "home areas" reflects the limitations of the methodology behind the socioeconomic comparisons, and deserves some explanation. Recruits are not routinely questioned about their parents' education, occupations, or earnings, or about their own aspirations. They are asked, however, for a home of record: typically a parent's address, or the recruit's last address before entering the service. The presence of home-of-record information in the personnel records makes it possible to link military personnel to the general characteristics of the populations in their home areas. The finer the geographic breakdown of home areas that is available, the closer will be the average population characteristics to the characteristics of the individuals' own families. For some time, postal ZIP codes have provided the most detailed breakdown available in the automated records.

Matching each recruit to data derived from the census for his or her home ZIP code provides a rough approximation to the characteristics of the recruit's own family. Similar imputations for each enlistment-age youth give characteristics for the comparison group. Appendix A offers a more complete explanation of the process, as well as a simple example.

Home-area measures may provide the best available results without recourse to expensive surveys, but the method has limitations.[1] The three major limitations are:

- If differences exist between military and comparison populations, the method probably understates the true sizes of the differences.
- The understatement of differences will be larger the greater is the variation within areas in the measure being examined, relative to the variation across areas.
- Conclusions about differences that emerge from the analysis can only properly be phrased as statements about the *home areas* of the populations being compared. Only with some caution, and an awareness of the first limitation above, should they be interpreted as statements about the true family characteristics of the individuals involved.

The understatement of the differences arises because differences that are apparent across areas probably also are present within each area. At one extreme, if each "area" consisted of a single individual or family, the method would exactly measure the true differences. At the other extreme, if there were only one area--the entire country--then no differences could be detected regardless of the true state of affairs.

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[1] As this was written, the Defense Department was conducting a survey of applicants for military service that asks, among other things, about their family characteristics. Family income is not among these characteristics; young people are generally thought to be poor reporters of their parents' incomes. The questions about other characteristics were designed to match, as closely as possible, the corresponding questions in the U.S. Census. Nonetheless, some comparability problems may exist because census questions are asked of an adult household head.

Taking the step from statements about home areas to statements about the actual backgrounds of the groups being compared requires making one or more strong assumptions, such as: (1) the people living within individual ZIP-code areas are generally fairly homogeneous with respect to the measure being examined; (2) the factors that lead to differences in enlistment rates across areas are not important, or at least are less important, within areas; or (3) socioeconomic background is best measured not by the characteristics of the individual's own family, but rather by the general characteristics of the people in the community in which he or she resides. Although a case can be made for the accuracy of each of these statements, a cautious interpretation of this study's results seems warranted.

All of the comparisons in this and the next chapter refer to males only. This approach is not meant to downplay the importance of female enlistees to the services. Rather, it reflects the likely males-only situation under conscription, the most commonly proposed remedy for perceived representation problems. In addition, changes in the male/female composition of recruits during the 1980s could affect socioeconomic comparisons between 1980 and 1987, suggesting that at the very least males and females should be examined separately.

COMPARISONS OF HOME-AREA INCOMES

Income does not by itself define socioeconomic status, but it is an obvious and useful measure. The effect of a family's income on the opportunities facing its children is readily understood; the contribution of the parents' education and occupation may not be so clear. Also, average incomes are available at the ZIP-code level separately by race, a feature not shared by some alternatives. Finally, the measure of income for families that is available from the census is probably more narrowly focused on the situations of young people than are the education and occupation measures, which refer to all adults and workers, respectively. For these reasons, comparisons of home-area family incomes between military personnel and the general youth population form the primary elements of this study's analysis. This section examines the situation of recruits; Chapter V follows a cohort of enlistees into the early-career years.

The section looks first at recruits of all races combined--first for the active services, then for the Selected Reserve components, and last for the total force (active and reserves together). Because these all-race comparisons conceal some important differences between blacks and whites, particularly with respect to the changes that have taken place in recruiting during the 1980s, the final portion compares family incomes of recruits and youths separately by race.

Active-Duty Recruits

Active-duty recruits tend to come from areas with modestly lower average income levels than is true for the general youth population. A gross measure of this difference is provided by the mean of average family incomes across ZIP-code areas. For 1987 males recruited into the four active services combined, this mean (weighted by enlistments) was $21,823 based on 1979 income levels. (Income data, like data on the other socioeconomic measures, come from the 1980 census. Unlike the other measures, they refer to the previous year and so are expressed throughout this paper in 1979 dollars.) For the general youth population, the mean was $22,661, for a difference of $838 or about 4 percent.[2] This difference does not result simply from regional variations in enlistment rates; although lower-income states tend to contribute proportionately more recruits, this accounted for only about one-quarter of the total difference.

A more complete picture of the income differences between the general youth population and active-duty male recruits in 1987 is shown in Figure 4. The figure displays the percentages of the groups that fell in each of six income ranges, based on 1979 median family incomes in the ZIP-code areas.[3] The ranges reflect percentiles of the

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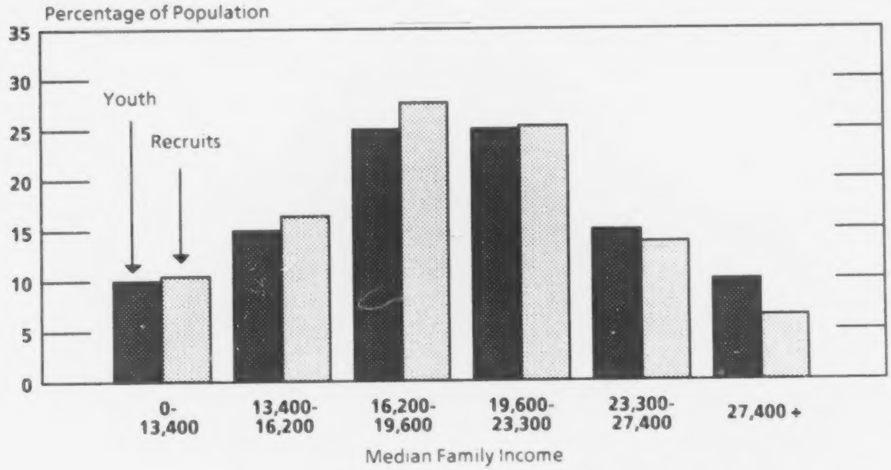
[2] The limited set of population variables available at the ZIP-code level includes none that is an ideal measure of the enlistment-age population of all races in 1987 (a good measure is available for whites and blacks separately). Fortunately, alternative measures yield income distributions that are quite similar--much closer to each other than they are to the distributions for recruits. The youth-population results presented in this chapter are actually based on the total population in the ZIP-code area; the mean for this proxy measure lies between those for two alternatives that are based on available youth-population variables.

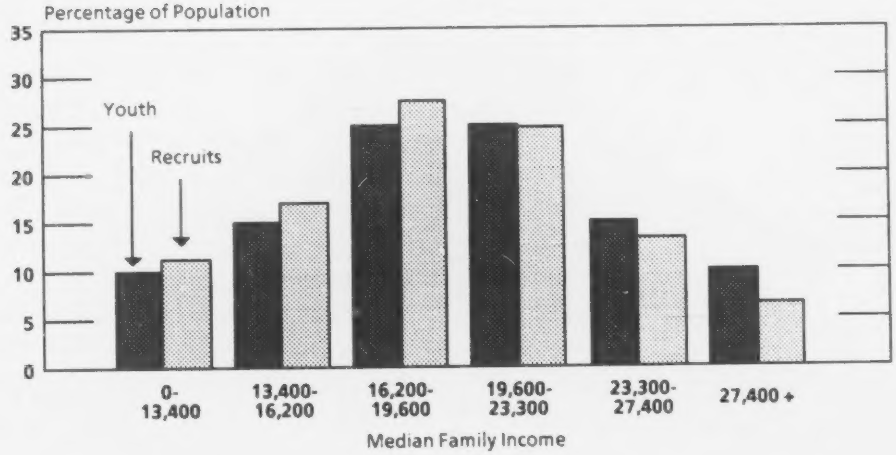
[3] Median incomes give a more reliable measure of area income levels than do average (mean) incomes. For comparisons across areas, a range of medians is used because the mean of a set of medians has no intuitive interpretation.

Figure 4
Distribution of 1987 Male Active-Duty Recruits and Enlistment-Age Youth by Home-Area Income: All Services and Army

All Services



Army



SOURCE: Congressional Budget Office from Defense Manpower Data Center and U.S. Census data.

NOTE: Income figures are based on ZIP-code area medians in 1979, and are expressed in 1979 dollars. Income ranges are based on percentiles of the youth distribution.

distribution for the youth population; the breaks come at the 10th, 25th, 50th, 75th, and 90th percentiles. Thus, the leftmost bar shows that 10 percent of the youth population lived in areas with median family incomes below $13,400 (the 10th percentile), the next bar that 15 percent lived in areas with incomes between $13,400 and $16,200 (the 25th percentile), and so on. The top panel compares the youth population with all active-duty male recruits; the bottom panel with male Army recruits only.

Three general conclusions emerge from the data. First, male recruits are drawn disproportionately from lower-income areas, although not to a marked degree. Second, despite the underrepresentation of higher-income areas, some recruits come even from those areas with the highest family incomes in the country. Third, the Army shows a somewhat greater tendency than the other services combined to draw from lower-income areas.

About 54.5 percent of 1987 active-duty male recruits came from ZIP-code areas with median family incomes below $19,600, compared with the half of enlistment-age young men who lived in those areas. These figures imply enlistment rates of 14.0 percent for areas in the lower half of the income distribution versus 11.7 percent in the upper half (based on the size of a single age cohort). Of the six income ranges shown in Figure 4, only in the top one ($27,400 and above) did the enlistment rate of 8.2 percent differ from the nationwide average by more than one and one-half percentage points. The lowest income range ($13,400 and below) is only slightly overrepresented; the highest enlistment rate is in the lower-middle range ($16,200 to $19,600).

High-income areas may be underrepresented among recruits, but they are not *un*represented. Of the 100 wealthiest ZIP-code areas, all with median family incomes exceeding $40,000 in 1979, fewer than one-quarter did not provide a single male recruit in 1987, and these accounted for less than 5 percent of the group's total population. Only 12 of these areas were unrepresented among male recruits in both 1980 and 1987. To be sure, enlistment rates for the group were quite low--about one-fifth of the national average. In addition some of the recruits from these areas probably do not come from wealthy families. Nonetheless, it is significant that the roster of areas represented includes the Los Angeles suburbs of Bel Air and Beverly Hills, California, and the Chicago suburbs of Kenilworth, Glencoe, and Winnetka, Illinois--indeed, the wealthy suburbs of every major U.S. city.

Army recruits in 1987 (bottom panel, Figure 4) were only slightly less representative in terms of home-area incomes than those of the four services combined. Slightly larger percentages from the bottom two income ranges (1.2 percentage points, in total) were balanced by a smaller percentage in the upper half of the distribution.

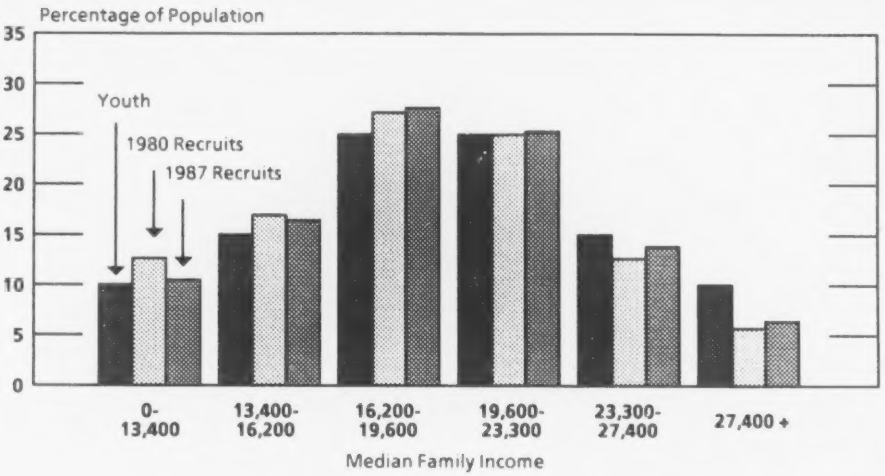
The situation in 1987 represented a substantial change from that in 1980, particularly for the Army. Figure 5 reproduces the charts from Figure 4, with bars for the 1980 distributions added. In 1980, 57 percent of male recruits came from areas in the bottom half of the income distribution, and almost 13 percent from areas in the bottom tenth. The enlistment rate for areas in the lowest range was more than twice as high as for areas in the highest range.

The Army's recruiting difficulties in 1980 are reflected in the income distribution for its recruits' home areas in that year. More than 15 percent of male Army recruits came from areas in the bottom 10 percent of the income distribution, less than 5 percent from areas in the top 10 percent, and more than six out of ten from the bottom half. This sort of concentration in lower-income areas should not be surprising, given the numbers of low-scoring recruits the Army was bringing in, because of the tendency for people in lower-income areas to perform relatively poorly on the Armed Forces Qualification Test, the military "entrance test" (see the discussion later in this chapter). Of the other services, only the Marine Corps approached the Army in overrepresentation of low-income areas; among Navy and Air Force recruits, these areas were actually underrepresented.

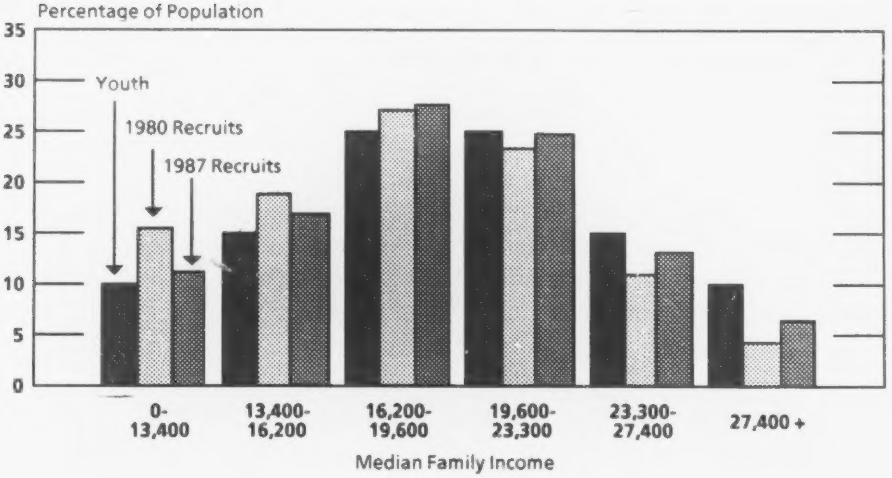
By 1987, active-duty male recruits were being drawn much more evenly from all income classes, as indicated by home areas. The overall change was mostly a result of what happened among Army recruits; although the Army still drew from lower-income areas more than did the other services, the income distribution for its recruits came to resemble closely those of the other services. All four services remained unable to draw proportionately from the highest-income areas, but in 1987 this was balanced by overrepresentation of middle- and lower-middle-income areas, rather than of the lowest-income areas as in 1980.

Figure 5.
Distribution of Male Active-Duty Recruits, 1980 and 1987, and of Enlistment-Age Youth, by Home-Area Income: All Services and Army

All Services



Army



SOURCE: Congressional Budget Office from Defense Manpower Data Center and U.S. Census data.

NOTE: Income figures are based on ZIP-code area medians in 1979, and are expressed in 1979 dollars. Income ranges are based on percentiles of the youth distribution.

Perhaps the most surprising aspect of the income distributions shown in Figure 5 is that the differences between recruits and the general youth population are not more striking. Even in 1980, when recruits were clearly unrepresentative on the quality measures, their home-area income distribution was broadly similar to that of all youth. Even the overrepresentation of blacks and other minorities, who tend to have lower incomes, did not lead to major differences. Of course, the differences probably would appear larger if recruits' actual family incomes could be displayed. Nonetheless, the appeal of military service apparently is not confined to those areas in which economic opportunities are the most meager.

Selected Reserve Recruits

Data on recruits to the Selected Reserves are neither as complete nor as reliable as those for active-duty recruits. In particular, available ZIP-code data do not permit usable income comparisons for all reserve components in both 1980 and 1987. This section focuses on the two largest components--the Army National Guard and Reserve--and for comparison presents data on the smaller Air Force Guard and Reserve.

The reserve components show much greater diversity in recruits' home-area incomes than is true of the active components. Mean incomes across ZIP-code areas for 1987 recruits, for example, range from $20,727 for the Army National Guard to $22,917 for the Air Guard. Presumably, this greater diversity reflects the different nature of reserve service. People are recruited to fill specific needs in individual reserve units, and generally live quite close to the units in which they will serve. Thus, reserve recruiting reflects situations in the particular local areas in which units happen to be located, which is not the case for active-duty recruiting. One result of this is the variation in reserve enlistment rates across states shown in Figure 3.[4] Another result is the diversity across reserve components in income distributions.

An examination of income distributions confirms the impression, given by the mean income figures, that recruits of the Army National

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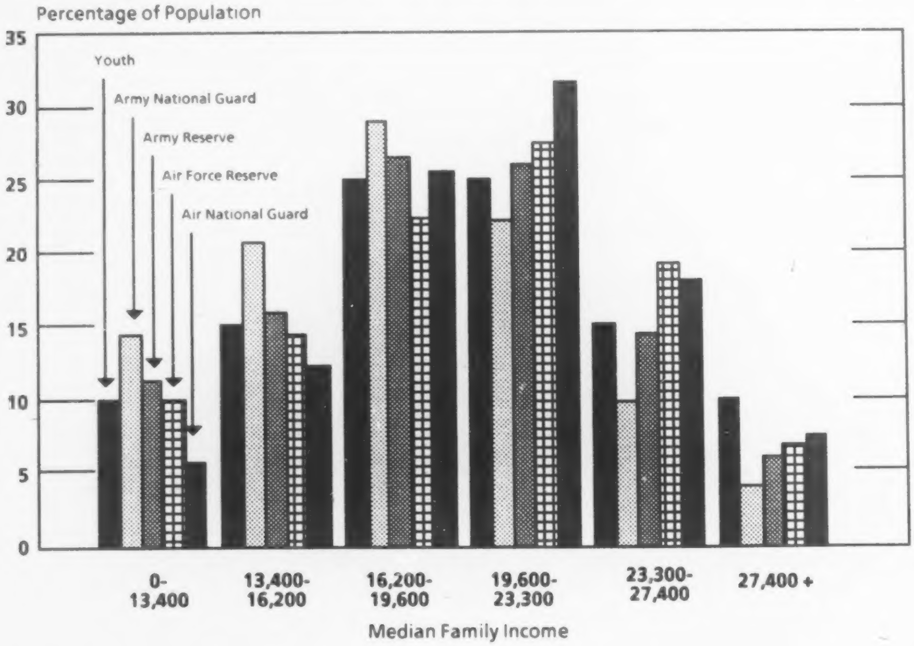
[4] As was true for active-duty recruits, variations across states in income levels and enlistment rates do not account for very much of the differences in mean incomes between the general youth population and recruits of the various reserve components.

Guard come from generally lower-income areas. Figure 6 compares the 1987 income distributions for the four Army and Air Force reserve components with that of the general youth population. Nearly two-thirds of Army Guard recruits lived in areas with median family incomes in the lower half of the income distribution. Racial differences in income do not explain this; the Army Guard had a fairly low percentage of minority recruits, compared either with the active Army or with the other reserve components (Tables 1 and 2, above). Differences across states in incomes and in Army Guard enlistment rates also do not explain the low home-area incomes, just as was true for active-duty recruits.

Figure 6.
Distribution of 1987 Male Selected-Reserve Recruits and Enlistment-Age Youth by Home-Area Incomes



SOURCE: Congressional Budget Office from Defense Manpower Data Center and U.S. Census data.

NOTE: Income figures are based on ZIP-code area medians in 1979, and are expressed in 1979 dollars. Income ranges are based on percentiles of the youth distribution.

In contrast to the Army Guard results, recruits of the Army Reserve had a distribution of home-area incomes that matched the general youth distribution fairly closely. Only about 54 percent of Army Reserve recruits in 1987 came from areas with median family incomes in the bottom half, and upper-middle-income areas were well represented. This was a sharp change from the situation in 1980, when Army Reserve recruits had an income distribution quite similar to that of the Army Guard of 1987. The Reserve's improvement in recruit quality between 1980 and 1987 mirrored that of the active Army. During this time, Army Reserve recruiting was turned over to the active Army's recruiting command, which applied to it the management techniques that had played a major part in the turnaround of active recruiting.

What sets the Army Guard apart from the other active and reserve components is that its recruits were more likely to come from rural areas. Only 59 percent of male Army Guard enlistees in 1987 lived in one of the roughly 300 areas--cities and their environs--designated as Standard Metropolitan Statistical Areas (SMSAs) by the Census Bureau, compared with over 70 percent of all active and reserve recruits in 1987 and 75 percent of the general population.[5] With average family incomes in non-SMSA areas lower by about $4,700 than those within SMSAs, the concentration of Army Guard recruits outside the SMSAs explains about 40 percent of the difference in home-area incomes between those recruits and the general youth population. The urban/rural mix may be even more important than this indicates; SMSAs are generally defined by county boundaries, and so may contain substantial rural areas within their bounds.[6]

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[5] These statistics are based on SMSA definitions as of the 1980 census. The Census Bureau has since dropped the term SMSA in favor of a set of terms that provide a more detailed breakdown of the larger metropolitan areas.

[6] Agricultural employment is also more common in the home areas of 1987 Army Guard recruits than it is for the general youth population, or for all active and reserve recruits. For example, better than one in five Guard recruits lived in an area with more than 10 percent of workers employed in agriculture, compared with about one in seven for all components and one in nine for the general youth population.

Income Distributions by Race

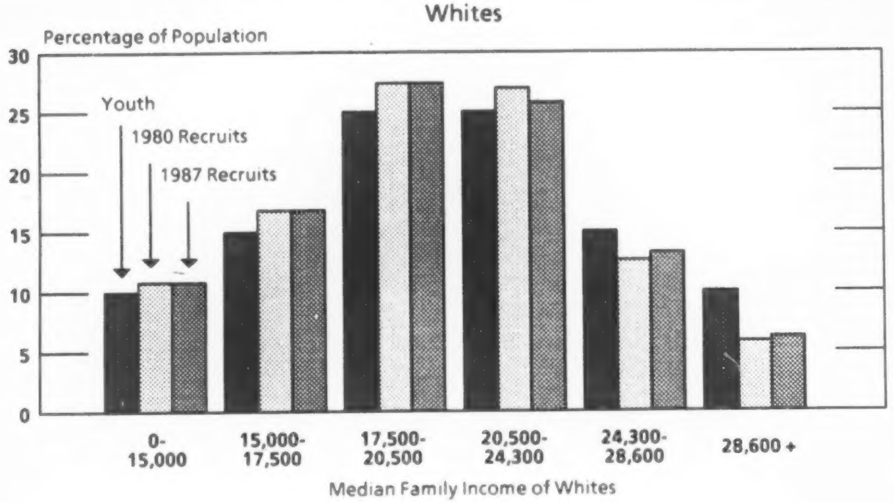
The pattern of differences in income distributions between active-duty recruits and enlistment-age youths of all races, shown in Figures 4 and 5 above, masks very disparate tendencies for blacks and whites taken separately. White recruits, who make up a majority of all recruits, generally mirror the all-race pattern: slight overrepresentation of low-income areas and underrepresentation of high-income areas (see Figure 7, top panel). Black recruits, in contrast, show precisely the opposite pattern in 1987 when compared with black youths (bottom panel). Areas in the bottom half of the distribution for median black family incomes contributed less than 44 percent of all active-duty black recruits in 1987, while areas in the top tenth contributed more than 13 percent. (For the Army, the corresponding percentages were 45 and 12, also showing an overrepresentation of higher-income areas.) Even in 1980, when so many recruits with low test scores were admitted, areas with low black family incomes contributed less than their share of black recruits. High-income areas were also underrepresented among black recruits in 1980; the bulge appears in the middle-income ranges.

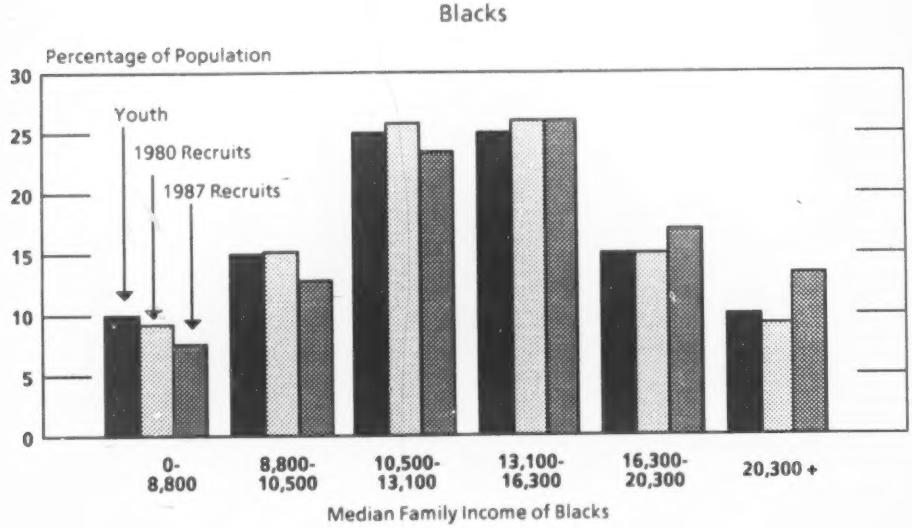
The Selected Reserve components show racial differences that are generally similar to those for the active services. Figure 8 displays, for example, the situation for the Army Reserve. In 1987, the Army Reserve drew its black recruits somewhat more heavily than the active Army from higher-income areas, its white recruits slightly less heavily from lower-income areas. The changes between 1980 and 1987 among white recruits, however, were considerably larger than for the active Army; the percentage of Army Reserve recruits coming from areas in the bottom half of the white income distribution fell from 61 percent to 54 percent, compared with a drop from 58 percent to 56 percent for the active Army.

EDUCATION LEVELS OF THE HOME-AREA ADULT POPULATION

Differences in the education levels of adults in the home areas of recruits versus the general youth population closely match the differences in family incomes. This is hardly surprising, given the ten-

Figure 7.
Distribution of Male Active-Duty Recruits, 1980 and 1987, and of Enlistment-Age Youth, by Home-Area Incomes: Whites and Blacks

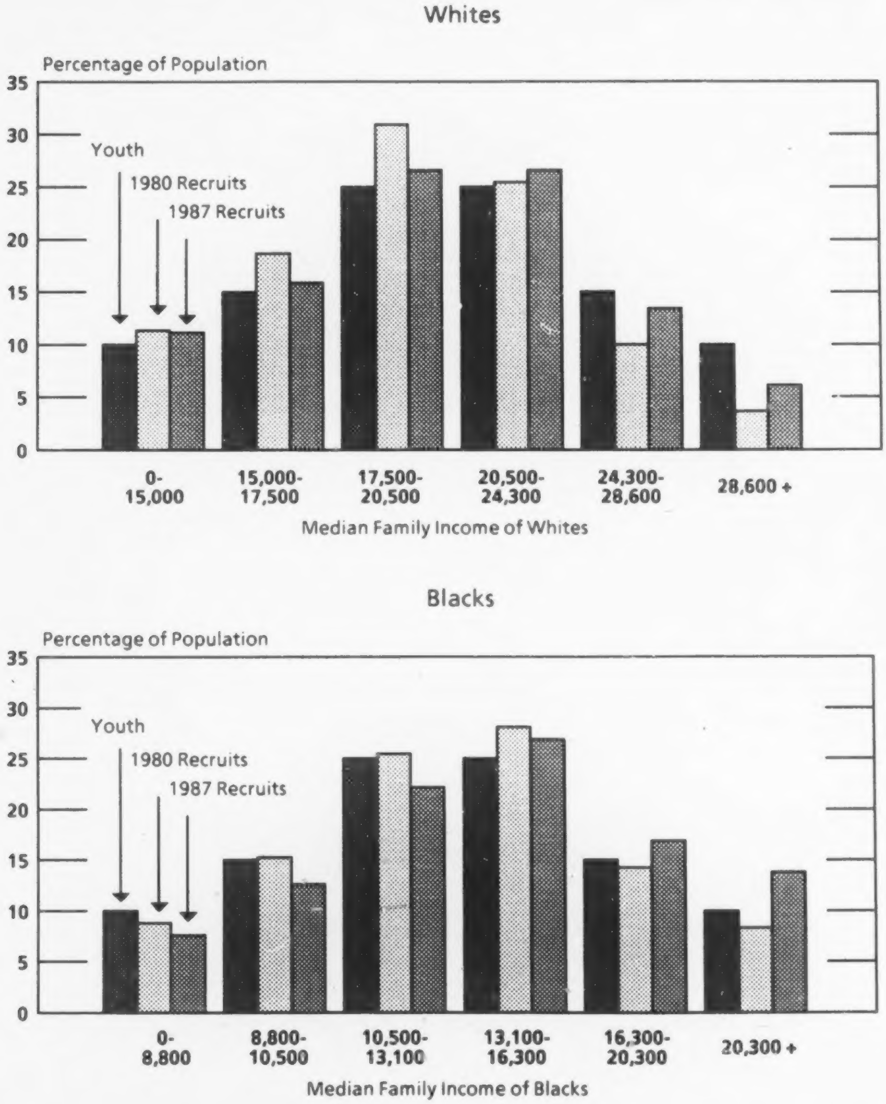




SOURCE: Congressional Budget Office from Defense Manpower Data Center and U.S. Census data.

NOTE: Income figures are based on ZIP-code area medians in 1979, and are expressed in 1979 dollars. Income ranges are based on percentiles of the youth distribution.

Figure 8.
Distribution of Male Army Reserve Recruits, 1980 and 1987, and of Enlistment-Age Youth, by Home-Area Incomes: Whites and Blacks



SOURCE: Congressional Budget Office from Defense Manpower Data Center and U.S. Census data.

NOTE: Income figures are based on ZIP-code area medians in 1979, and are expressed in 1979 dollars. Income ranges are based on percentiles of the youth distribution.

dency of higher incomes to be associated with higher education levels.[7] The finding is significant, however, because it suggests that, qualitatively, the results of the ZIP-code methodology are reasonably insensitive to changes in the variable being examined.

The distributions of active-duty recruits and the youth population with respect to the percentage of their home-area adults (24 years and older) with at least some college are shown in Figure 9. The six ranges defining the sets of vertical bars are determined, as in the income figures above, by percentiles of the distribution for the youth population. Thus, for example, the top ranges indicate that 10 percent of white youths lived in areas where more than 53 percent of the white adult population had some college education, and 10 percent of black youths in areas where more than 36 percent of black adults had some college.

The chart for whites could almost be mistaken for the corresponding chart on family incomes. Underrepresentation among recruits of areas at the top of the distribution is balanced by overrepresentation in the low to middle levels, with a slight upward shift evident between 1980 and 1987. The distributions for white Army recruits (not shown) are also quite similar to those for income, although with a somewhat greater upward shift between 1980 and 1987.

The upward shift was more pronounced among blacks. In 1987, almost 14 percent of all black active-duty recruits (and 13 percent of black Army recruits) came from areas in which more than 36 percent of adult blacks had attended college, compared with 9 percent (and 8 percent) in 1980. Again, comparing the chart with the corresponding chart for incomes (Figure 7) reveals very little difference.

OCCUPATIONS OF WORKERS

Parents' occupations are a common measure of socioeconomic background for young people. Executive or professional occupations, for example, convey higher status than clerical or service occupations. A

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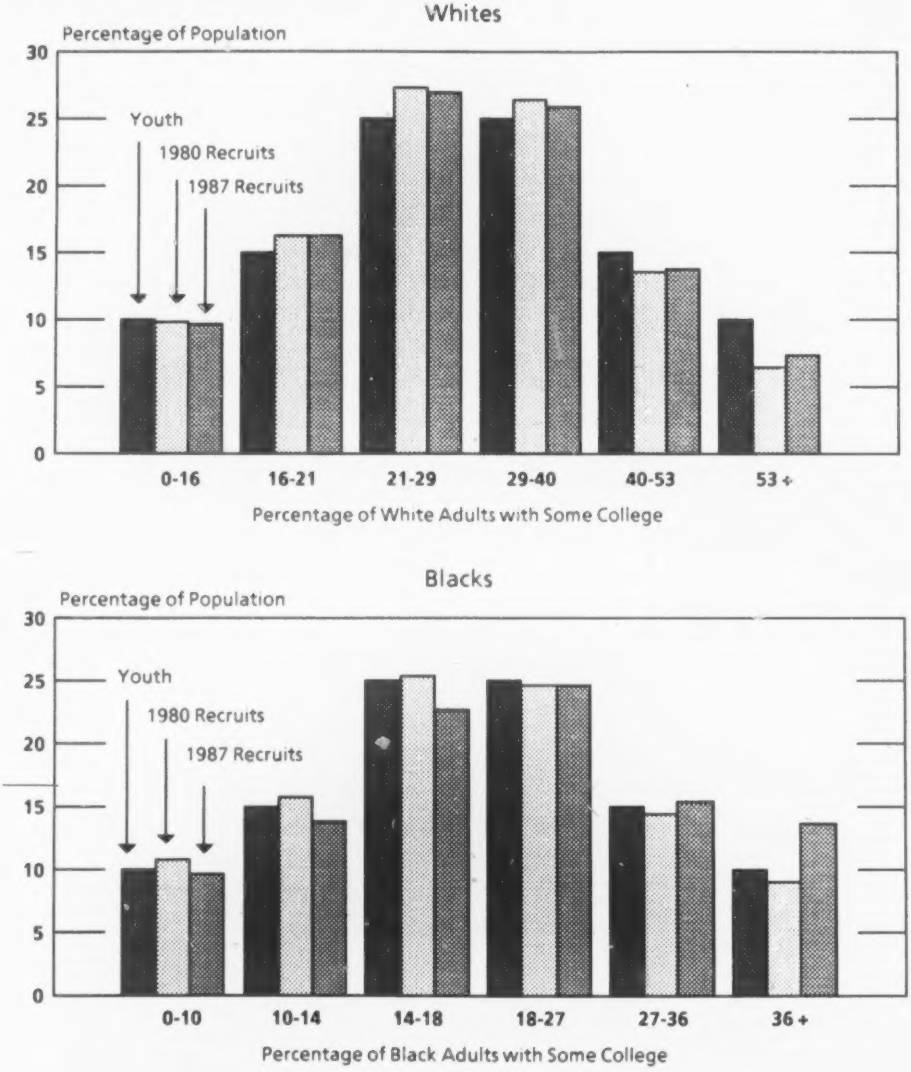
[7] Population-weighted correlations across ZIP-code areas between median family incomes and median school years are about 0.7 for whites and 0.5 for blacks.

Figure 9.
Distribution of Male Active-Duty Recruits, 1980 and 1987, and of Enlistment-Age Youth, by Home-Area Adult Education Levels (Percentage of Adults with Some College): Whites and Blacks



SOURCE: Congressional Budget Office from Defense Manpower Data Center and U.S. Census data.

NOTE: Education data are based on ZIP-code area percentages in 1980.

finding that higher-status--and higher-paying--occupations are underrepresented in the home areas of recruits would tend to corroborate the results for family incomes and for adult education levels. The obvious correlation between occupations and incomes suggests that such a finding should be expected.

Despite the connection between occupation and income, recruits' home areas differ only slightly from those of the general youth population in the distribution of workers' occupations. Of the eleven occupations identified in the census, five--executive, professional, sales, technical, and clerical--were less common among workers in the home areas of 1987 active-duty recruits than in the home areas of all youths. The difference was quite small, however: just over two percentage points, with roughly half of all workers employed in the five occupations.[8] Even for 1980 Army recruits the difference was only slightly greater, and by 1987 the increment had largely been eliminated.

Few occupations showed differences that could be considered large. Farming was more common in the home areas of 1987 recruits than of all youth, by about one-eighth, but farming accounts for only about 3 percent of all employment. Among occupations that were less common in recruits' home areas, professionals showed the largest difference, accounting for 11.9 percent of all workers but only 11.0 percent of the workers in the home areas of recruits.

Differences for blacks and whites separately are no larger, although an interesting pattern appears for blacks. Those occupations that are overrepresented in the home areas of black recruits, compared with the home areas of all black youths, tend to be those in which blacks are underrepresented relative to whites.[9] For example, about 7.5 percent of all workers in the home areas of black youths are executives compared with 10.1 percent in the home areas of white youths, yet for black Army recruits in 1987 the percentage was 8.0. Aggregating across all of the disproportionately white occupations, however, this difference between black recruits and all black youths amounts to only two percentage points. White recruits do not show any corresponding pattern. These results are consistent with the income results, which showed larger differences between black recruits and black youths than between white recruits and white youths, and showed black recruits coming disproportionately from higher-income areas.

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[8] The weighted average of the percentages employed in the five occupations by ZIP-code area, with the numbers of 1987 active-duty recruits as weights, is 49.2 percent. With a proxy for the youth population used to weight the ZIP-code occupation percentages, the average is 51.6 percent. Like the income and education data, the occupational distributions are based on the 1980 census.

[9] The data on occupations do not distinguish race. Thus, the statement about underrepresentation of blacks refers to the occupations of all workers living in the areas in which black youths live. Despite this limitation of the data, however, rather large differences appear between blacks and whites: the six occupations that are underrepresented in the home areas of black youths account for 42 percent of the workers living in those areas, compared with 52 percent of the workers in the home areas of white youths.

EXPLAINING THE CHANGES: ENLISTMENT STANDARDS AND THE ELIGIBLE POPULATION

The 1980s saw dramatic changes in the characteristics of military recruits, as this chapter and the previous chapter have shown. The percentage of recruits who were black declined, especially in the Army; test scores improved and more recruits came in with high school diplomas; and measures of socioeconomic status showed a shift upward, particularly among blacks.

What caused the changes? Following two years of very low recruit quality, the military services--again, particularly the Army--tried to be more selective about the recruits they accepted. Higher military pay, greater civilian unemployment in the early 1980s, and more generous GI Bill benefits improved the recruiting climate; Army initiatives in recruiter management made that service better able to take advantage of the improved climate. By 1987, the Army was rejecting virtually all applicants who scored in category IV on the AFQT (10th through 30th percentiles), and all applicants without high school diplomas who scored below the 50th percentile on the entrance test (the other services had similar standards). In 1980, more than half of Army recruits had been in category IV, and three-quarters of nongraduates had fallen below the 50th percentile. As this section shows, the drive for higher quality reduced the black percentage among recruits despite strong tendencies in the opposite direction, and brought in recruits from more favorable socioeconomic backgrounds.

Racial Mix

The focus on recruit quality had a predictable effect on the racial mix among recruits: it reduced the percentage of blacks and other minorities. This was predictable because of what had been learned from the 1980 administration of the AFQT, the military entrance test, to a nationally representative sample of youth.[10] The results confirmed that, as a group, blacks score lower on this test than do whites, as is the case for other standardized tests.[11] Blacks also are less likely to graduate from high school than whites. Thus, as the services increasingly sought recruits who performed well on the established quality measures of test scores and education, more and more blacks were either disqualified from enlistment or, although they might meet minimum standards, not accepted because better-qualified applicants were available to the services.

The differential impact of high enlistment standards on blacks and nonblacks is shown in Figure 10. If all individuals in category IV had been ineligible to enlist in the Army in 1987, more than 70 percent of black males would not have been acceptable to the Army compared with about 30 percent of nonblacks. Even allowing for the small number of category IV recruits accepted (about 4 percent of the total), the figure makes clear that Army policies disqualified a large majority of blacks from Army service while leaving most nonblacks eligible.

Although greater selectivity in recruiting and blacks' relatively low test scores reduced total participation of blacks in the military, better-qualified blacks continued to be attracted to the services. Indeed, between 1980 and 1987 the number of black high school graduates enlisting *increased* in every AFQT category except category IV (see Table 4). For all four active services together, the number of black graduate recruits in categories IIIB (31st to 49th percentiles) and II (65th to 92nd) more than doubled between 1980 and 1987, and in category IIIA (50th to 64th) nearly tripled. Enlistments of nonblack

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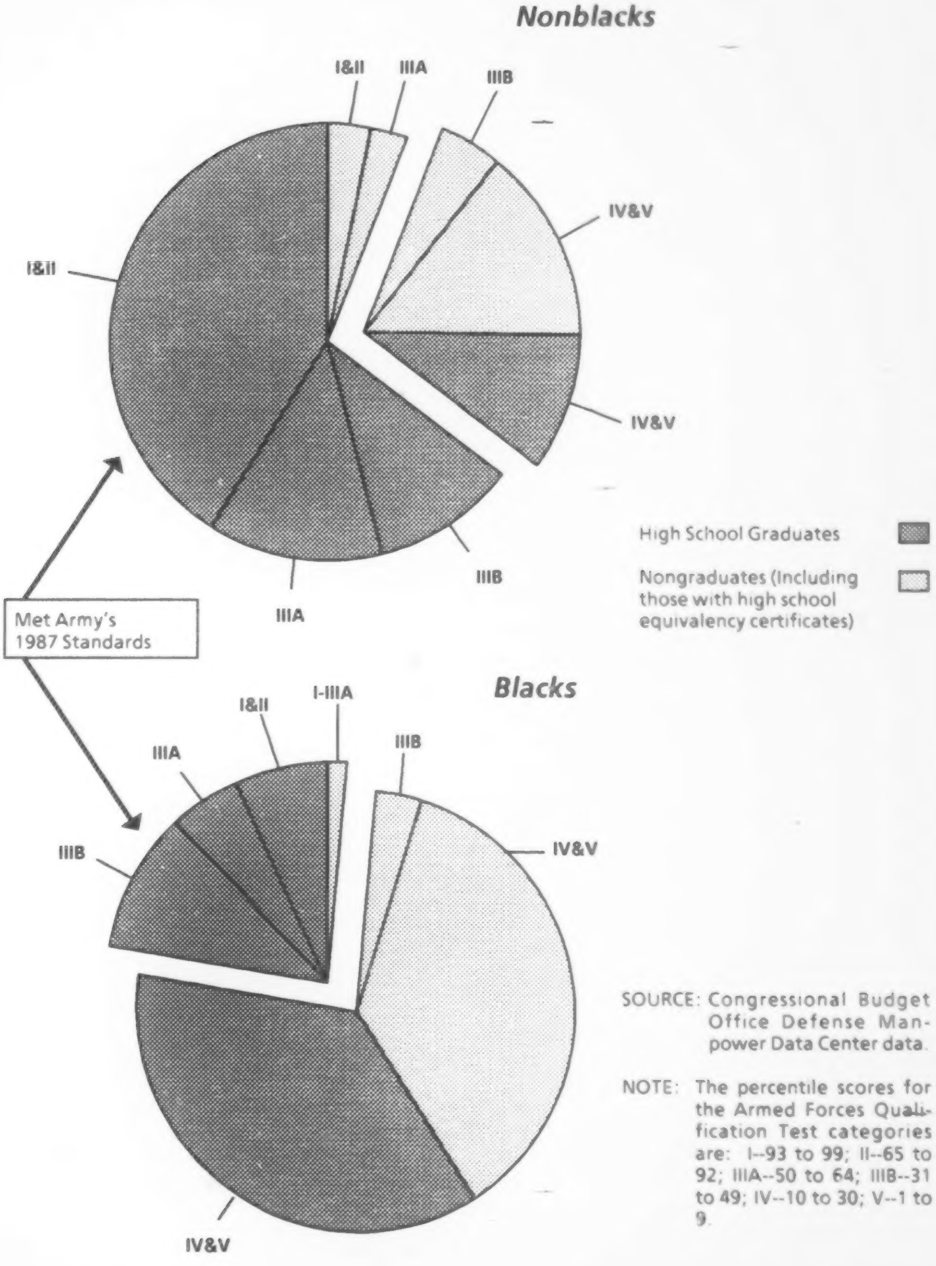
[10] Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), *Profile of American Youth: 1980 Nationwide Administration of the Armed Services Vocational Aptitude Battery* (March 1982).

[11] See the references in ibid., p. 34.

Figure 10.
Distribution of Enlistment-Age Youth by Education and AFQT Category, and Fractions Meeting Army's 1987 Enlistment Standards: Nonblacks and Blacks



SOURCE: Congressional Budget Office Defense Manpower Data Center data.

NOTE: The percentile scores for the Armed Forces Qualification Test categories are: I--93 to 99; II--65 to 92; IIIA--50 to 64; IIIB--31 to 49; IV--10 to 30; V--1 to 9.

TABLE 4. PERCENTAGE CHANGE IN MALE ACTIVE-DUTY ACCESSIONS, 1980 TO 1987, BY RACE, EDUCATION, AND AFQT CATEGORY

Education	AFQT Category I	II	IIIA	IIIB	IV	Total
Nonblack						
High School Graduate	8.3	71.7	77.9	27.2	-82.0	22.6
Nongraduate	-77.3	-50.4	-29.6	-99.5	-100.0	-81.4
Total	-1.7	43.3	41.6	-26.1	-90.6	-15.2
Black						
High School Graduate	69.3	141.4	195.4	116.1	-83.5	-5.7
Nongraduate	-63.0	-20.3	22.9	-99.3	-100.0	-89.1
Total	50.8	106.2	150.8	52.8	-88.3	-29.5

SOURCE: Congressional Budget Office from Defense Manpower Data Center data.

NOTE: Percentile scores for the Armed Forces Qualification Test (AFQT) categories are: I--93 to 99; II--65 to 92; IIIA--50 to 64; IIIB--31 to 49; IV--10 to 30.

graduates in the upper AFQT categories also increased, but not nearly to the same extent. As a result, representation of blacks increased in every AFQT category between 1980 and 1987 (including category IV) even as it declined overall.[12] For example, in 1980 blacks accounted for 10.4 percent of category IIIA recruits--in 1987, 17.0 percent. Blacks made up 32.2 percent of category IIIB recruits in 1987, up from 18.6 percent in 1980. Over the same period, their share of total active-duty accessions dropped from 21.5 percent to 18.5 percent. The sharp reduction in the number of category IV recruits--a category in which blacks make up more than one-fourth among enlistment-age youth--explains this counterintuitive result.

The overall figures on racial composition give the misleading impression that, during the 1980s, a greater relative willingness of nonblacks to enlist in the military finally reversed the trend toward increased representation of blacks in the military. In fact, the various factors that allowed the services to be more selective apparently increased the appeal of military service to blacks by even more than it did to whites. The drop in representation of blacks was purely a function of racial differences in test scores and the services' natural interest in enlisting high scorers ahead of low scorers.

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[12] In category IV, enlistments of blacks fell by less, in percentage terms, than did enlistments of nonblacks.

Socioeconomic Status

The greater emphasis on recruit quality affected the socioeconomic status of recruits--examined here in terms of family incomes--in two major ways. First, higher average AFQT scores, particularly among black recruits, were accompanied by a shift toward recruits from higher-income areas. Recruits with higher AFQT scores tend to come from areas with higher family incomes. Second, the fall in the percentage of black recruits that resulted from the emphasis on quality, coupled with the large difference between average income levels of blacks and of whites, raised the distribution of home-area incomes among recruits of all races combined.

The estimated relationships, in 1980 and 1987, between AFQT scores and home-area median family incomes for black Army recruits are shown in Figure 11. In 1980, each one-point increase on the AFQT was associated with an increase of about $25 in family income. In 1987, any given AFQT score was associated with higher home-area family income than in 1980. In addition, the slope of the relationship had increased as a result of a higher rate of high school graduation (95 percent versus 61 percent), so that each point on the AFQT was then associated with about $28 of home-area income.

Higher AFQT scores explain more than half of the rise in black recruits' home-area incomes between 1980 and 1987. The two dashed lines in Figure 11 indicate the average AFQT scores among black Army recruits: 25.0 in 1980 and 46.4 in 1987. Based on the 1980 relationship, one would predict an increase in incomes of about $540, indicated by the arrow along the 1980 line.[13] The remainder of the increase ($460), indicated by the vertical arrow, consists of the enhanced effect of AFQT resulting from the higher graduation rate in 1987, an offsetting reduction resulting from the tendency of graduates

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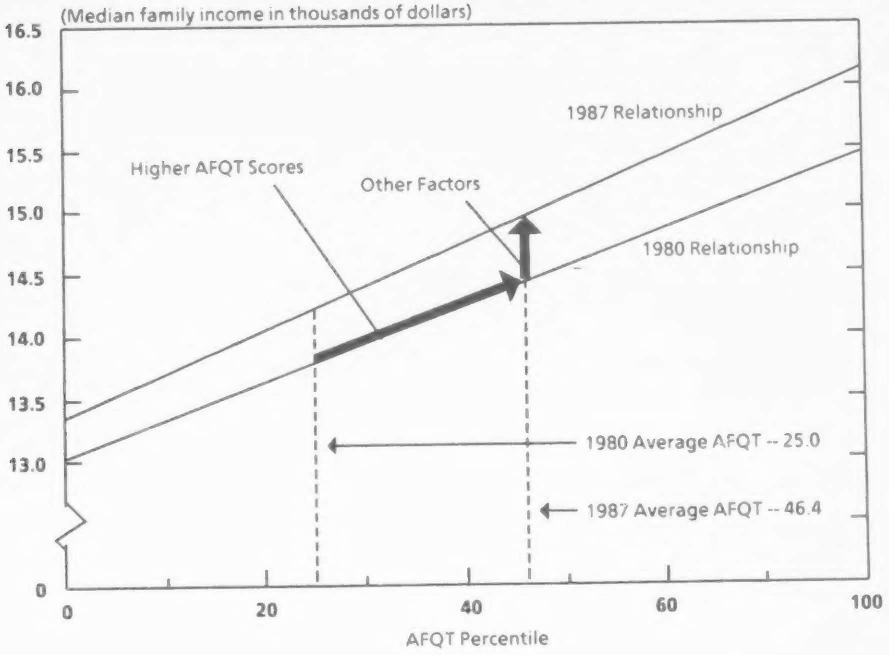
[13] If the 1987 relationship is used instead, the increase attributable to higher AFQT scores is $619. This reflects the steeper slope associated with a higher percentage of high school graduates. It is not clear which method of calculating the contribution of higher AFQT scores is the more appropriate.

Figure 11.
Relationships Between AFQT Scores and Home-Area Incomes, Showing Factors That Explain Changes in Incomes Between 1980 and 1987 Black Male Army Recruits



SOURCE: Congressional Budget Office from Defense Manpower Data Center and U.S. Census data

NOTE: The lines shown are based on the results of linear regressions of home-area median family incomes on AFQT scores, an indicator variable for high school graduate status, and an interaction variable equal to the product of the other two. The estimated equations were evaluated at the means, in the respective years, of the education variable. As explained in the text, the arrow along the 1980 line shows the higher home-area incomes associated with higher AFQT scores of 1987 recruits in comparison with 1980 recruits. The vertical arrow indicates the extent to which unexplained factors contributed to the higher home-area incomes of the 1987 recruits. Income figures are based on ZIP-code area medians in 1979, and are expressed in 1979 dollars.

to come from lower-income areas, and--the major effect--an unexplained residual.

Despite the large shift in the home-area income distribution for black recruits, the drop in the percentage of black recruits accounted for almost half of the rise in average incomes for all Army recruits. Black family incomes average more than $7,000 less than those of whites, based on averages across ZIP-code areas. The six-point drop in the percentage of blacks recruits raised the average of Army recruits' family incomes by more than $400, even though the blacks who entered the Army in 1987 had much higher home-area incomes than did their 1980 counterparts.

CHAPTER V

FOLLOWING A COHORT: DETERMINANTS OF CAREER-FORCE COMPOSITION

First-term personnel make up less than half of all active-duty enlistees today, so who enlists does not tell the whole story of social composition in the military. Equally important is who stays to become part of the career force. Not only do the NCOs (noncommissioned officers) form a large share of the enlisted force; for the 300,000 recruits who enter annually, the NCOs are also the trainers, immediate superiors, and primary contact with the service. Just as the attitudes of recruits may influence the direction and control of the military, in the opinions of some observers, so may the attitudes of the NCOs affect the views of the recruits--both those who stay in the military and those who return to civilian life.

The analysis in this chapter shows that enlistees' decisions to stay or leave during the early years of service tend to reinforce the differences between recruits and the general youth population, leading to a career force that is less representative than the entering recruits. Blacks are more likely than whites to choose a military career, and enlistees who come from lower-income areas are more likely to do so than those from higher-income areas. The latter is true even for each race separately, and this, combined with the shift in racial composition and lower minority income levels, results in a considerable downward shift in the income distribution as a group of enlistees progresses into the early career years.

METHOD

This chapter follows a single cohort of enlistees--people who entered the active-duty military during one year--until each had served, or left before serving, at least six years. (Recruits enter active duty with initial commitments ranging from two to six years.)

By the six-year point, every member of the cohort had made at least one stay/leave decision: only one decision for that minority of recruits who chose six-year obligations, but two decisions for many recruits who chose shorter tours and who reenlisted or extended their commitments after completing their initial obligations. Those members who were left at the end of the six-year period provide a picture of the differences in social composition between the career force and the group of recruits from which it develops; and what happened during the period provides indications of the forces shaping the career-force composition.

Although analysis of a single cohort provides an imperfect picture of the factors shaping the career force, it probably is a better picture than one derived from examining the entire career force of today. That force includes many people who entered during the draft years, and who remained in service despite the reductions in force that followed the withdrawal from Vietnam. It also includes many who stayed through the difficult years of the All-Volunteer Force during the late 1970s, when the Chief of Naval Operations complained of a "hemorrhage of talent" and the Army Chief of Staff lamented his "hollow Army." And it includes substantial numbers who entered when enlistment standards were very low because of the errors in test scoring that occurred in the late 1970s.

The cohort examined in this chapter consists of all those who entered active-duty enlisted service between April 1981 and March 1982, inclusive. The entry dates for this cohort were dictated by two considerations. First, that the cohort should not include many recruits whose entry tests were originally misscored or who entered before the upturn in recruiting conditions in 1981.[1] Second, that every member could be observed until he or she had the opportunity to reenlist at least once. The six-year terms of some enlistees, and a cutoff date of July 1988 imposed by the schedule of this study, combined with the two considerations to fix the entry dates.

How do the recruits in this cohort compare with those in the two groups examined in the previous chapters, or with future groups of enlistees? In terms of the percentage of enlistees with high school diplomas--the primary predictor of first-term attrition (losses before the end of the initial commitment)--this cohort is much closer to the 1987 group than to recruits in 1980 (see Table 5). In addition, service policies had virtually eliminated enlistments of nongraduates in category IV. Significant numbers of category IIIB nongraduates were

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[1] Because of the delayed entry program (DEP), which allows recruits to delay their entry for up to one year after being accepted for service, the cohort will include some people who were accepted with misscored tests. All AFQT scores reported in this chapter have been rescored, if necessary, but the final composition of the cohort probably was affected somewhat by the presence of a small number of enlistees who would not have been accepted had their tests been scored correctly in the first place.

TABLE 5. DISTRIBUTION OF RECRUITS BY EDUCATION AND AFQT CATEGORY: 1980, 1987, AND 1981/1982 COHORT (In percent)

Year	Education	AFQT Category				Total
		I&II	IIIA	IIIB	IV	
		Army				
1980	High School Graduate	10.2	5.4	10.9	28.1	54.5
	Nongraduate	3.6	4.0	12.2	25.7	45.5
	Total	13.8	9.3	23.1	53.8	100.0
1987	High School Graduate	35.2	22.6	29.4	4.0	91.2
	Nongraduate	3.4	5.3	0.1	0.0	8.8
	Total	38.6	28.0	29.4	4.0	100.0
1981/ 1982	High School Graduate	21.2	11.2	22.6	27.4	82.5
	Nongraduate	3.5	4.1	8.8	1.1	17.5
	Total	24.7	15.3	31.5	28.5	100.0
		All Services				
1980	High School Graduate	19.0	9.8	17.2	22.1	68.1
	Nongraduate	4.8	4.3	9.8	13.0	31.9
	Total	23.8	14.1	26.9	35.1	100.0
1987	High School Graduate	38.4	23.2	28.0	4.0	93.6
	Nongraduate	2.7	3.7	0.1	0.0	6.4
	Total	41.1	26.8	28.1	4.0	100.0
1981/ 1982	High School Graduate	27.1	14.0	24.4	17.4	82.8
	Nongraduate	4.4	4.2	8.0	0.6	17.2
	Total	31.5	18.2	32.4	18.0	100.0

SOURCE: Congressional Budget Office from Defense Manpower Data Center data.

NOTE: Percentile scores for the Armed Forces Qualification Test (AFQT) categories are: I--93 to 99; II--65 to 92; IIIA--50 to 64; IIIB--31 to 49; IV--10 to 30. For 1980, small numbers of recruits in category V (percentiles 1 to 9) are included under category IV.

still enlisting, however, as were substantial numbers of category IV graduates. The retention pattern of this cohort may not match, therefore, the pattern of more recent entry cohorts, but it may be a good indication of what can be expected of the somewhat lower-quality cohorts who may be enlisted in the next few years.

The analyses in this chapter do not, in general, combine the four active services. For the four services together, the compositional changes in the cohort as it progresses through the years of service mix two kinds of trends: the shifts in social composition within each of the services, and a distributional shift toward the services with higher retention rates. The former are the trends of interest; the latter, as it turns out, tend to offset the changes in social composition. Enlistees from lower-income areas, for example, are somewhat more likely to remain in service, but the Air Force, which attracts recruits from higher-income areas than the other services, generally has higher retention rates. Separate results for all four services would be too cumbersome to be useful, however, so this chapter compromises by discussing the services at the two extremes in terms of recruit quality: the Army and the Air Force.

Data problems precluded a comparable examination of the Selected Reserve components.

COMPOSITION BY RACE AND SEX

Black and other minority enlistees tend to remain in the military at higher rates than do whites, especially in the Army, leading to a notable change in the racial mix over the first six years of service. Of the white males in the cohort who entered the Army, about 18 percent remained in the military after 75 months (three months into the seventh year), compared with about 31 percent of black males (see Table 6). Among females, the difference was even greater: 14 percent for whites versus 34 percent for blacks. As a result, the percentage of blacks rose from 27 when the cohort entered to 38 at the end of the period, while the percentage of whites fell from 69 to 57. In the Air Force, more

TABLE 6. DISTRIBUTION OF 1981/1982 COHORT AND PERCENTAGE REMAINING AFTER 75 MONTHS, BY RACE AND SEX

	Male				Female			
	White	Black	Other	Total	White	Black	Other	Total
				Army				
Remaining After 75 Months	18.5	30.7	23.9	21.8	13.8	34.3	23.7	21.5
Distribution								
At accession	59.7	21.2	4.0	84.9	9.1	5.3	0.7	15.1
After 75 months	50.8	29.9	4.4	85.1	5.8	8.4	0.7	14.9
				Air Force				
Remaining After 75 Months	35.0	46.0	41.3	36.9	28.1	49.0	37.3	31.9
Distribution								
At accession	71.3	12.9	3.4	87.6	10.0	2.1	0.4	12.4
After 75 months	68.8	16.3	3.9	89.1	7.7	2.8	0.4	10.9

SOURCE: Congressional Budget Office from Defense Manpower Data Center data.

modest differences in retention rates led to an increase in black representation only from 15 percent to 19 percent over the six years.[2]

The mix by sex also changed in both services, but in this case it was the Air Force that exhibited the larger shift. The percentage of females, which began at about 12 percent, fell by 1.5 points in the Air Force, compared with a fall of only 0.2 points in the Army. In both services, however, the tendency for blacks to stay at higher rates than whites outweighed the lower retention rates of females. As a result, black females accounted for larger shares of the totals at the end of 75 months.

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[2] The percentage of recruits with high school diplomas is higher for blacks than for whites (and for females than for males), but this explains only a small part of the differences in retention rates. The general patterns apparent in Table 6 would be essentially the same if only graduates were examined.

RECRUIT QUALITY

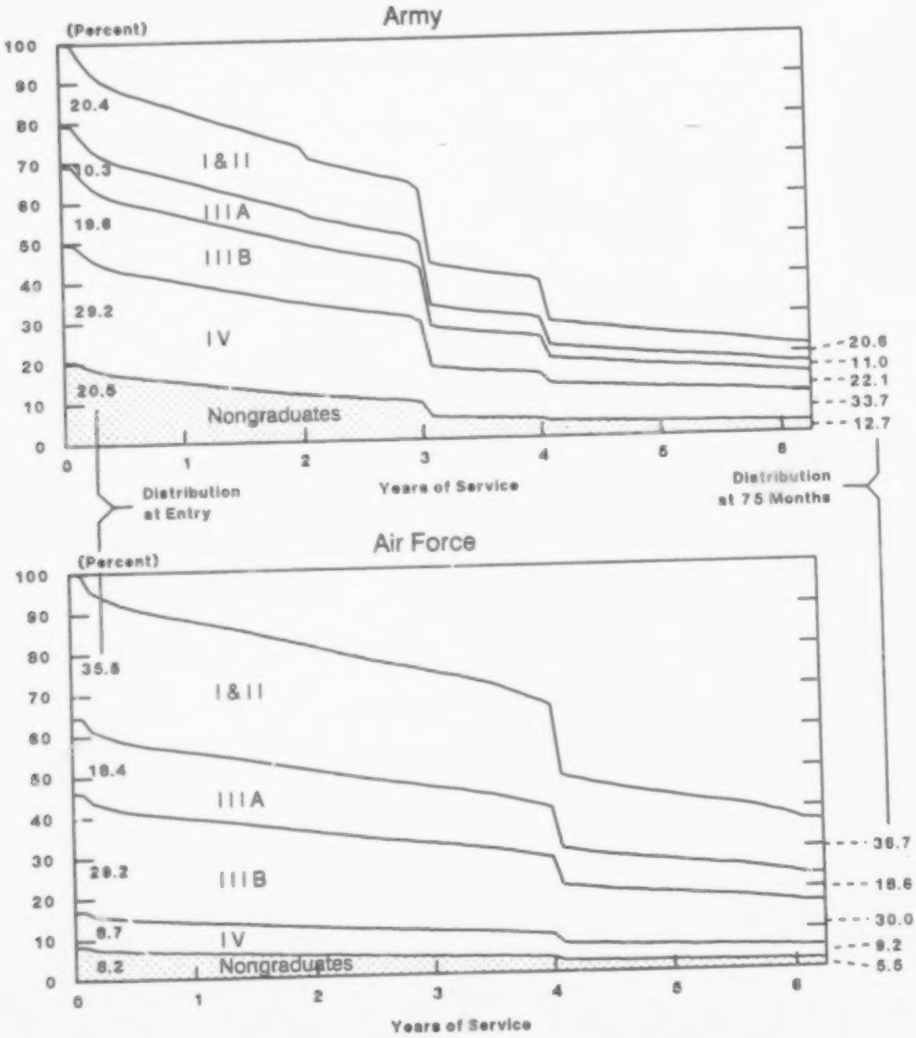
Of the males in the cohort who entered the Army, more than three-quarters left before reaching 75 months of service (see Figure 12). Large losses occurred, naturally, at the ends of the third and fourth years--three- and four-year tours were the most common initial commitments. Substantial losses also were apparent in the first few months and throughout the early years, reflecting the first-term attrition that the services allow rather than forcing unhappy or unsuitable recruits to complete their legal obligations.

The quality mix among Army enlistees changed remarkably little through the six years. The most notable change was the reduction in the percentage accounted for by nongraduates. This change was primarily a result of first-term attrition (losses before the initial commitment is completed); three-quarters of the reduction in the nongraduate share of those remaining occurred before the end of the third year. All categories of graduates increased their share, although the increase was somewhat smaller in the highest AFQT categories (I and II) than in the others. Also notable in the figure is the slight reduction in the numbers of people in the higher AFQT categories at the two-year point. The small number of two-year Army enlistees in this cohort--about 4 percent among males--were required to have high school diplomas and score in the top half on the AFQT (category IIIA or above).

The picture for the Air Force (bottom panel, Figure 12) is broadly similar to that for the Army, but a much higher percentage of the cohort remained in the Air Force after 75 months--more than 36 percent. Only one large drop appears, at the four-year point when virtually all Air Force enlistees in this cohort finished their initial enlistment terms. First-term attrition accounts for more than half of all losses in the six-year period.

The relative decline of the higher AFQT categories among high school graduates that is evident for the Army is more a function of the changing racial mix than it is of differences in retention rates by AFQT category. In fact, for a given race and education category, retention rates are quite similar across AFQT categories--particularly among high school graduates, who make up the bulk of enlistees (see Table 7).

Figure 12.
Percentage of 1981/1982 Male Cohort Remaining by Year of Service, Divided into Education and AFQT Groups: Army and Air Force



SOURCE: Congressional Budget Office from Defense Manpower Data Center data.

NOTE: Percentile scores for the Armed Forces Qualification Test (AFQT) categories are: I--93 to 99; II--65 to 92; IIIA--50 to 64; IIIB--31 to 49; IV--10 to 30. The educational attainment shown in the figure is that of the enlistee at entrance to active duty. Most nongraduates who stay in the services obtain high school diplomas or equivalency certificates.

For white graduates in the Army, for example, retention rates through 75 months range from 21.4 percent to 18.7 percent; with the omission of category IV, which would have been most affected by Army attempts to weed out marginal performers, the range is only 1.3 percentage points. The "other" race category shown in Table 7 exhibits more variation, but it accounts for only a few thousand of the recruits who entered in the cohort.

TABLE 7. RETENTION RATES FOR MALES IN THE 1981/1982 COHORT THROUGH MONTH 75, BY RACE, EDUCATION, AND AFQT CATEGORY

Race	Education	AFQT Category I	II	IIIA	IIIB	IV
		Army				
White	High School Graduate	20.1	21.4	20.9	20.9	18.7
	Nongraduate	19.0	14.7	12.9	11.4	10.7
Black	High School Graduate	34.7	33.6	35.8	33.3	31.1
	Nongraduate	a	15.6	19.3	18.3	18.4
Other	High School Graduate	22.5	23.4	25.1	26.2	25.3
	Nongraduate	a	17.9	22.5	15.9	17.9
		Air Force				
White	High School Graduate	37.9	37.7	35.6	34.6	34.0
	Nongraduate	28.2	23.5	23.8	23.1	a
Black	High School Graduate	41.8	43.1	46.2	46.5	51.0
	Nongraduate	a	28.5	32.3	41.0	a
Other	High School Graduate	41.9	36.2	42.7	44.3	40.8
	Nongraduate	a	32.9	39.7	42.1	a

SOURCE: Congressional Budget Office from Defense Manpower Data Center data.

NOTE: Percentile scores for the Armed Forces Qualification Test (AFQT) categories are: I--93 to 99; II--65 to 92; IIIA--50 to 64; IIIB--31 to 49; IV--10 to 30.

a. Fewer than 20 persons.

HOME-AREA INCOMES

The increased shares of blacks and other minorities as the cohort progresses through the years of service, coupled with the lower average incomes of those groups, makes a decline in home-area incomes almost inevitable, and indeed one appears (see Figure 13). When the cohort entered, 13 percent of Army males came from areas in the bottom 10 percent of the family income distribution; of those who remained after six years, 16 percent were from these low-income areas. At entry, 58 percent of the Army males were from areas in the bottom half of the income distribution; after six years, almost 65 percent were from such areas. The changes in the income distribution for Air Force enlistees in the cohort showed a similar pattern but were not as great. The percentage of Air Force males from areas in the bottom half of the income distribution rose from 52 percent at entry to 57 percent after six years.

More surprising than the shift for all races combined is that similar shifts occurred for both whites and blacks separately (see Figure 14). For Army whites, the percentage from areas with below-average incomes rose from 55 percent at entry to 60 percent after six years; for blacks, it rose from 50 percent to 54 percent. The shifts in the Air Force (not shown) were quite similar.[3]

In contrast to the changes for recruits between 1980 and 1987 that were examined in the previous chapter, the race-specific changes as this cohort progressed are not explained by what happened to AFQT scores. Among both blacks and whites, the distribution across AFQT categories hardly changed between entry and the 75-month point.[4] Evidently, some sorting out takes place among the enlistees during the first few years of service that is truly based on socioeconomic background, rather than being a coincidental change resulting from service policies and the correlation between socioeconomic status and test scores.

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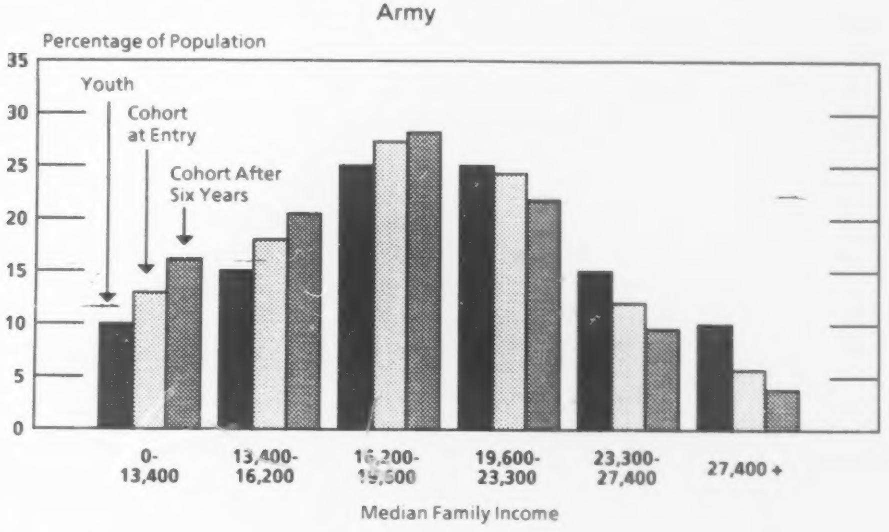
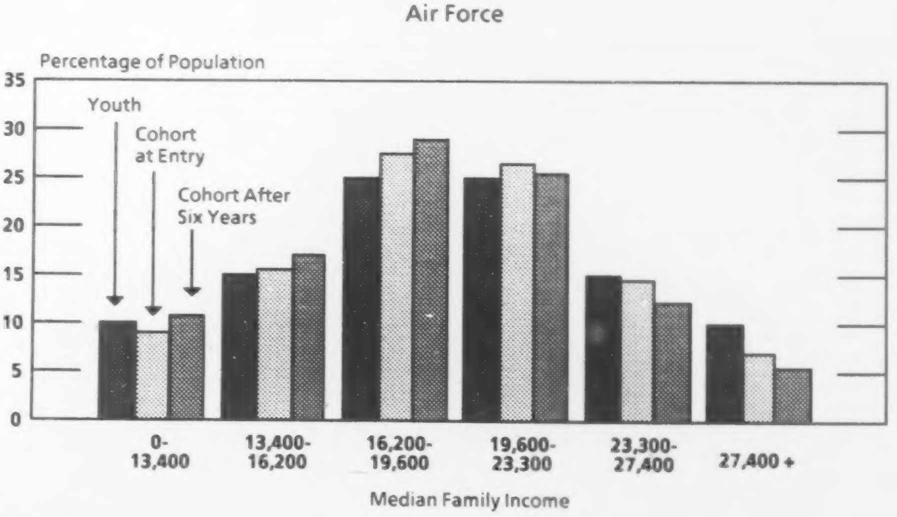
[3] Although the home-area income distribution for blacks in the cohort who entered the Air Force shifted downward, those who remained after six years still had higher average home-area incomes than the general black youth population, as was true when the cohort entered the Air Force.

[4] A modest shift toward the lower AFQT categories occurred among the black Air Force enlistees, but it was not large enough to account for the income shift.

Figure 13.
Distribution of 1981/1982 Male Cohort, at Entry and After Six Years, and of Enlistment-Age Youth, by Home-Area Incomes: Army and Air Force

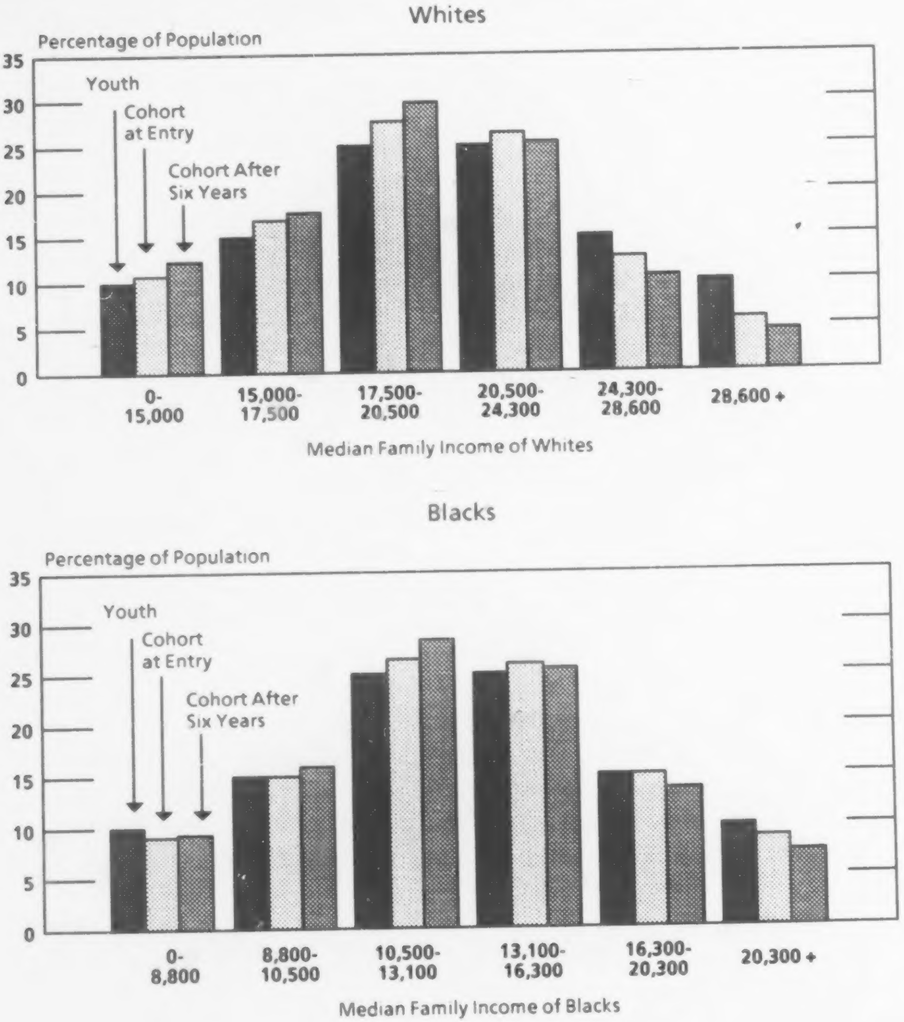




SOURCE: Congressional Budget Office from Defense Manpower Data Center and U.S. Census data.

NOTE: Income figures are based on ZIP-code area medians in 1979, and are expressed in 1979 dollars. Income ranges are based on percentiles of the youth distribution.

Figure 14.
Distribution of Army 1981/1982 Male Cohort, at Entry and After Six Years, and of Enlistment-Age Youth, by Home-Area Incomes: Whites and Blacks



SOURCE: Congressional Budget Office from Defense Manpower Data Center and U.S. Census data.

NOTE: Income figures are based on ZIP-code area medians in 1979, and are expressed in 1979 dollars. Income ranges are based on percentiles of the youth distribution.

Two factors that might be expected to influence the distribution of home-area incomes as the cohort progressed through the years of service--initial tour-length choices and service discharge policies--had little effect in the Army. At the time this cohort entered, the Army offered initial commitments of two, three, or four years, with two-year terms directed primarily at college-bound youths.[5] Although it is true that the mean home-area income for two-year enlistees was roughly $1,000 greater than that for enlistees of all tour lengths (within each race group), and that two-year enlistees reenlisted at a much lower rate than those who chose longer tours, there were too few two-year people in the cohort for this difference to have much effect on the distribution of home-area incomes during the years of service. Income differences between three- and four-year enlistees were too small to have any appreciable effect. Further, the income difference between stayers and leavers was roughly the same for every term-of-service group (again, within each race group).

Army discharge policies contributed only very slightly to the downward shift in home-area incomes among black enlistees. Those with honorable discharges, who can roughly be characterized as voluntary leavers, had somewhat lower home-area incomes than those who were forced out (receiving general, bad-conduct, and dishonorable discharges). The small size of the difference, however, and the relatively small number of less-than-honorable discharges, made the net effect very minor. Among nonblack enlistees the differences, again small, worked in the other direction: those who were forced out tended to come from lower-income areas than those who chose to leave.[6] The same patterns emerge when enlistees are divided by interservice separation codes, which indicate the reason for separation. Those discharged for "failure to meet minimum behavioral or performance criteria" came from somewhat higher-income areas for blacks, and lower-income areas for nonblacks, than their counterparts who left for other reasons.[7]

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[5] Two-year tours were available only to high school graduates who scored in the top half on the AFQT, and who chose training in one of a set of specified military specialties, primarily in the combat arms. Enlistees who selected the two-year option were also eligible (beginning in 1982) for the Army College Fund, a program offering substantial enhancements to the basic postservice education benefit program available to all enlistees. During 1981, when many of the personnel in the cohort examined here signed their enlistment contracts, an experiment was being conducted under which educational-benefit offerings differed across the country. For more information on the experiment, see Richard L. Fernandez, *Enlistment Effects and Policy Implications of the Educational Assistance Test Program* (Santa Monica, Calif.: The RAND Corporation, R-2935-MRAL, September 1982).

[6] This pattern was particularly pronounced for the "other" category, for which the difference in average home-area incomes between those with honorable and less-than-honorable discharges amounted to more than $1,000.

The term-of-service and discharge results confirm that the pattern of lower home-area incomes for stayers than for leavers was predominantly a result of individual self-selection rather than of service policies. That is, enlistees from higher socioeconomic backgrounds, as measured by the average family income levels in the ZIP-code areas of their homes, were more likely to choose to leave than those from lower socioeconomic backgrounds. Discharge policies in the Army do not consistently favor enlistees from either high- or low-income areas.

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[7] This category includes personnel separated through the trainee and expeditious discharge programs, most of whom receive honorable discharges.

CHAPTER VI

POPULATION REPRESENTATION UNDER A PEACETIME DRAFT

A return to conscription is probably the most obvious, and most commonly suggested, solution for correcting perceived problems in the social composition of the enlisted forces. Under a lottery draft without exemptions, as opposed to the system of selective service with which this country has had much greater experience, those drafted should constitute an accurate cross section of the eligible population. Sons of wealthy parents would be as likely to serve as those of poor parents, college-bound young men as likely as high school dropouts. Or would they?

At least three obstacles would stand in the way of conscription's producing such idealized representation. First, various groups probably would be excused from military service, such as conscientious objectors, persons with criminal records, and those whose aptitudes made them ill-suited for military jobs (as those who score in the bottom tenth on the military entrance examination are currently barred by law from serving). Second, conscription might well worsen representation in the career force. Third, and most telling, unless volunteering was sharply restricted by either law or regulation, the number of draftees needed at current force sizes would not be sufficient to change the social composition of the enlisted forces markedly, or to improve representation among volunteers by inducing many people to volunteer in order to avoid being drafted.

This chapter presents simulations, based on the data and analyses of the previous chapters, of the social composition among Army recruits under the small-scale draft that would be compatible with today's active-duty force sizes and absence of hostilities involving U.S. troops. To create a need for such a draft where no need now exists--at least in the Army's view--the analysis assumes a substantial reduction in military pay during the first two years of service. The chapter also discusses, without offering precise estimates, the changes that could be expected in the other services and among personnel choosing a military career.

THE NATURE OF THE ASSUMED DRAFT

For a draft to be viable, the Army probably would have to rely on conscription for a substantial portion of its annual requirement for recruits. A pay reduction on the order of 30 percent to 50 percent covering the first two years of military service, coupled with renewed conscription, might induce the Army to fill roughly half of its requirement with draftees.[1] That requirement would be somewhat greater than under today's volunteer system because of the greater turnover and training requirements associated with two-year draftees. Annual Army accessions of about 160,000 (compared with an average of 112,000 nonprior-service accessions in 1987 and 1988) would support an Army enlisted strength of 684,000 personnel, an 18,000 increase over 1987 that would maintain the number of trained personnel available for unit assignments that the Army had in that year.

This is not the large-scale draft probably envisioned by most advocates of a return to conscription. At 80,000 draftees per year, the draft calls assumed in this analysis would be rather small compared either with historical levels or with the size of the eligible population in the 1990s (perhaps one million males reaching enlistment age each year even after deductions for military volunteers and those who are ineligible to serve). The more universal drafts that advocates may remember from the 1950s and 1960s occurred when (a) active-duty personnel strengths were higher than they are today, (b) the sizes of enlistment-age cohorts were smaller, and (c) the career forces accounted for smaller percentages of all enlistees. Such large-scale drafts would not be warranted given current personnel strengths and the quality of today's recruits. In filling half of its annual requirement with draftees, the Army would be able to maintain the quality (education and test scores) of its volunteer enlistees at roughly today's levels, which this analysis assumes it would do.

A lottery draft, with no males exempted except as discussed below, would be consistent with the most recent draft experience of this country (1969 to 1973), and is assumed in the analysis. The analysis also assumes that the draft has been in effect long enough for transition effects to have disappeared.

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[1] These estimates are loosely based on the assumption that the number of high-quality recruits (high school graduates in AFQT categories I through IIIA) would vary in equal proportion with a change in pay (a pay elasticity of supply of 1.0). The figure of 1.0 is widely used in the literature, but only through an arbitrary assumption can it be applied to a pay change that affects only the first two years of service. The range of pay changes given reflects the uncertainty created by the need for this assumption.

Of the likely exemptions to the draft, the exclusion of those scoring in category V on the Armed Forces Qualification Test (1st through 9th percentiles)--who are precluded from induction under current law--would have the most obvious and predictable effect on the composition of draftees. Almost half of those in category V are black, so the draft-eligible population would underrepresent blacks and other minorities. People in category V probably also tend to come from lower socioeconomic backgrounds, as suggested by the results presented in Chapter IV on the relationship between AFQT and home-area income. Draftees would therefore most likely come from areas with somewhat above-average family incomes. Finally, the exclusion would raise the quality of draftees above that of the general youth population, both through its effect on AFQT scores and because those in category V are disproportionately high school dropouts. Recruit quality among draftees would be lower than that of current Army enlistees, however.

The effects of other exclusions are more difficult to estimate. Some people would be ineligible for medical reasons. Medical disqualification rates appear to rise slightly with home-area incomes.[2] They may also be higher for blacks than for whites.[3] Moral standards--the disqualification of those with felony convictions, for example--probably would be relaxed so as not to offer an easy escape for draft dodgers. Conscientious objectors might tend to come from more well-to-do families, and perhaps be disproportionately white, but there is no way to quantify these effects without at least knowing exactly what rules would be applied. Because of the lack of firm relationships, the quantitative results that follow reflect adjustments only for the effects of the category V exclusion.

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[2] Sue E. Berryman, Robert M. Bell, and William Lisowski, *The Military Enlistment Process: What Happens and Can It Be Improved?* (Santa Monica, Calif.: The RAND Corporation, R-2986-MRAL, May 1983), pp. 43-45.

[3] John W. Overbey, II, Phillip E. Winter, and Michael T. Laurence, *The Medical Fitness of American Youth for Military Service* (Arlington, Va.: Defense Manpower Data Center, undated), pp. 23-25. The small numbers of minority persons included in the study's sample made the observed differences by race not statistically significant.

REPRESENTATION AMONG ARMY RECRUITS

Compared with today's Army recruits, the mixed force of volunteers and draftees that would enter under the assumed pay and draft regime would match the youth population more closely on both demographic and socioeconomic measures, but the match would remain imperfect. Table 8 shows the simulated distributions by education and test scores, for the mixed force and for its volunteer and draftee components. The draftee percentages are based on unpublished Defense Department tabulations.

The quality of the mixed force, as measured by education and AFQT scores, would match the quality of the youth population more closely than does that of today's recruits, which is to say that it would be worse. The mixed force would include about 61 percent with above-average AFQT scores, compared with 50 percent for the youth population (55 percent for the eligible population) but 66 percent for male recruits in 1987. The percentage of high school graduates for the mixed force would also be lower than today--83 percent compared with about 76 percent in the youth population but 90 percent among 1987 recruits.[4]

The mixed force would match the racial mix among enlistment-age males much more closely than do today's recruits. Although 14.6 percent of male 18-year-olds were black in 1987, only about 11 percent of draftees would be black because of the category V exclusion. Overrepresentation of blacks among volunteers would be partially offset by underrepresentation among draftees, resulting in a mixed force with 16.5 percent blacks. This share compares with 21.8 percent blacks among 1987 male Army recruits.

The mixed force of volunteers and draftees clearly would be more representative of the general youth population in terms of home-area family incomes than were recruits in 1987 (Figure 15), although again not perfectly representative. The exclusion of those in AFQT category V yields a force of draftees with slightly higher home-area incomes

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[4] In an all-volunteer environment, this reduction would lead to higher first-term attrition rates, but presumably draftees would not be as readily released from their commitments as are volunteers today.

TABLE 8. DISTRIBUTION OF MALE ARMY VOLUNTEERS, DRAFTEES, AND MIXED FORCE, BY EDUCATION AND AFQT CATEGORY
(In percent)

Education	AFQT Category					Total
	I	II	IIIA	IIIB	IV	
			Volunteers[a]			
High School Graduate	4.2	30.7	21.3	29.1	4.6	89.9
Nongraduate	0.1	3.8	6.2	0.1	0.0	10.1
Total	4.3	34.5	27.4	29.2	4.6	100.0
			Draftees[b]			
High School Graduate	8.3	28.5	12.7	15.4	11.5	76.5
Nongraduate	0.5	2.3	2.7	6.5	11.6	23.5
Total	8.8	30.8	15.4	22.0	23.1	100.0
			Mixed Force[c]			
High School Graduate	6.3	29.6	17.0	22.3	8.0	83.2
Nongraduate	0.3	3.0	4.4	3.3	5.8	16.8
Total	6.6	32.6	21.4	25.6	13.8	100.0

SOURCE: Congressional Budget Office.

NOTE: Percentile scores for the Armed Forces Qualification Test categories are: I--93 to 99; II--65 to 92; IIIA--50 to 64; IIIB--31 to 49; IV--10 to 30.

a. Distributions for 1987 accessions.

b. Distributions for 1980 youth with persons in AFQT category V eliminated, corrected for change in racial mix between 1980 and 1987.

c. Half draftees and half volunteers.

than the youth population; only 48 percent would come from areas in the bottom half of the income distribution.[5] The draftees would not include enough young men from areas in the top tenth with respect to family incomes, however, to offset the underrepresentation of these areas among volunteers. The mixed force, combining draftees and volunteers, would still fall almost two percentage points short of accurately representing the top tenth, and would draw 52 percent of its recruits from areas in the bottom half. Today's Army recruits, for comparison, fall four points short of proportionately representing the top tenth, and include 55 percent from areas in the bottom half.

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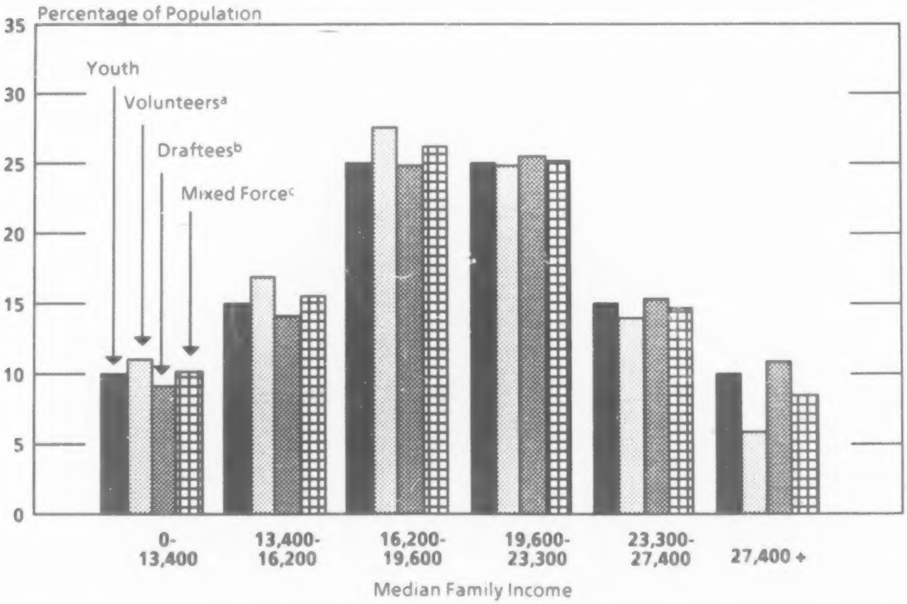
[5] The income distribution shown for draftees assumes that persons in AFQT category V are distributed across ZIP-code areas in proportion to the numbers of Army category-IV recruits in 1980. This assumption probably results in an understatement of the upward shift in the income distribution when persons in category V are excluded, but the lack of category V recruits even in 1980 made a more accurate procedure impossible.

Figure 15.
Distribution of Male Volunteers, Draftees, Mixed Force, and Enlistment-Age Youth, by Home-Area Incomes



SOURCE: Congressional Budget Office from Defense Manpower Data Center and U.S. Census data. Distributions for volunteers, draftees, and mixed force are Congressional Budget Office projections.

NOTE: Income figures are based on ZIP-code area medians in 1979, and are expressed in 1979 dollars. Income ranges are based on percentiles of the youth distribution.

a. Distributions for 1987 accessions

b. Distributions for 1980 youth with persons in AFQT category V eliminated, corrected for change in racial mix between 1980 and 1987.

c. Half draftees and half volunteers.

Two important qualifications to these results deserve note. As discussed in Chapter IV, the use of ZIP code-area incomes probably understates the extent of differences in actual family incomes between recruits and the general youth population--hence the use of the term "home-area incomes." For draftees, however, only the adjustment for those in AFQT category V is affected by this problem. Thus, whatever the distribution of actual family incomes for volunteers, the addition of an equal number of draftees would eliminate at least half of the differences from the distribution for the general youth population.

The second qualification concerns the social composition of volunteers. The results given above assume that the volunteers entering under the draft would match the Army's 1987 recruits in all respects except numbers. Although the Army could ensure this matching on measures of recruit quality, it could not readily do so with respect to race and home-area incomes. It seems likely that the pay reduction assumed for this analysis would tend to reduce the representation of young men from higher socioeconomic backgrounds and to increase the percentage of blacks, even if the AFQT/education distribution were held constant. Unfortunately, no studies have been conducted that would predict the differential effects of a pay cut on the supply of black versus white volunteers, much less on that of volunteers from high- versus low-income areas. Thus, although the volunteers under a draft might be less representative of the general youth population than today's recruits, there is no way to estimate how much less, or even to be sure that there would be any change.

REPRESENTATION IN THE ARMY'S CAREER FORCE

The improved representation among recruits under the draft almost certainly would not extend to the Army's career force. To some extent, however, the composition of the career force would be less important under a draft; the career force would be smaller both absolutely and as a fraction of all enlisted personnel.

In terms of representation of the general population, those personnel choosing an Army career under a draft would probably only match, at best, those making that choice under the All-Volunteer Force. The last groups of draftees brought into the Army in the early 1970s--who, by the time their initial obligations were completed, faced little possibility of seeing combat--reenlisted at much lower rates than volunteers either of the same period or of today. A similar situation probably would prevail if conscription was resumed. Thus, most career personnel would come from the ranks of those who entered voluntarily. If volunteers under the draft tended to be less representative than today's volunteers, as the discussion above suggests might be true, the same would probably be true of those who chose to reenlist. In addition, the Army might try to increase the reenlistment rate among volunteers to offset their smaller numbers, which presumably would require easing reenlistment standards. Lower standards, however, could be expected to worsen the representativeness of reenlistees.

REPRESENTATION IN THE NAVY, MARINE CORPS, AND AIR FORCE

The services not directly affected by the draft probably would find their recruits coming more from lower-income areas, and including more blacks, than is true today. As noted above, the pay reduction that would create a need for conscription could have a greater effect on enlistments of more-advantaged youths than of those from poorer backgrounds, even assuming the AFQT/education distribution of recruits were held constant. The three services not receiving draftees, however, would not be able to hold the quality of their volunteers constant; some declines would be inevitable, although they would not be great enough to make the use of two-year conscripts look attractive to these services.[6] In admitting more low-scoring and nongraduate recruits, the Navy, Marine Corps, and Air Force would be disproportionately drawing youths from lower-income areas, including larger percentages of minorities.

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[6] The assumed pay reduction would only affect the first two years of service. Because these three services rely almost exclusively on four-year enlistees, the reduction in total first-term pay would be much smaller, in percentage terms, than the reduction over the first two years.

APPENDIXES

APPENDIX A

USING DATA ON ZIP-CODE AREAS TO MEASURE SOCIOECONOMIC STATUS

The presence of home-of-record information in the military personnel records makes it possible to link military personnel to the general characteristics of the populations in their home areas. The finer the geographic breakdown of home areas, the closer will be the average population characteristics to the characteristics of the individuals' own families. For some time, postal ZIP codes have provided the most detailed breakdown available in the automated records.

Roughly 33,000 ZIP codes are active in the United States. In 1980, an average ZIP-code area had a population of about 6,800 people, of whom about 65 were males reaching enlistment age in that year. The 27,000 ZIP-code areas from which active-duty recruits came in 1980 provided an average of 13 recruits each. There is, of course, considerable diversity: one ZIP-code area had a population of only 100, another a population of more than 100,000; for 18-year-old males, the range was from 0 to 1,400; for recruits, from 0 to 339.[1]

Data tabulated at the ZIP-code level from the 1980 census, and relevant to an examination of socioeconomic status, include various populations, average and median family incomes, educational attainment of adults, occupations and industry employment of workers, average family sizes, and numbers of families below the poverty line. Many of these measures are available separately by race.

METHOD OF THIS STUDY

For each person in the military group to be examined (1980 male Army recruits, for example), the home-of-record ZIP code and the census data provide an approximation (admittedly rough) to the characteristics of his or her own family. Similar imputations are made for each person in the chosen comparison group (enlistment-age males, for example). The census data provide the numbers of people in the comparison group within each ZIP-code area. For a given socioeconomic measure (average family income, for example), the distributions of the military and general populations on that measure can then be compared. Depending on the particular measure, various comparisons might be of interest, such as means, percents within given ranges, and distributions across discrete classes (occupations or educational levels, for example).

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[1] The range for 18-year-olds excludes some areas that had unusually large populations for this group but not for younger age groups.

A simple example will illustrate both the method and its limitations. Suppose the country consisted of two areas--call them East and West--with equal populations, including equal numbers of families and of enlistment-age youths, as shown in the table below. The average family income (AFI) in the East is $10,000; in the West it is $20,000. The AFI nationwide is then $15,000. An *approximation* to the AFI of enlistment-age youths is also $15,000. (This is only an approximation because these youths might not be evenly distributed across families; perhaps 18-year-olds are more common in higher-income families.) If the Army recruits 300 youths from East, and 100 from West, then an estimate of the AFI for these recruits is $12,500: (300 × $10,000 + 100 × $20,000)/400 = $12,500. The estimated AFI for Navy recruits is $14,000.

Area	AFI	Total Population	Youth	Army Recruits	Navy Recruits
East	$10,000	50,000	1,000	300	180
West	$20,000	50,000	1,000	100	120
Total		100,000	2,000	400	300
AFI by Group			$15,000	$12,500	$14,000

Whether the method detects any difference between military and comparison populations depends in part on how much variation there is across the areas being examined. If both East and West had AFIs of $15,000, for example, the method would indicate an AFI of $15,000 for *any* population group. The more variation there is across areas, other things being equal, the more able will the method be to find differences if they exist.

How good are the estimates for recruits? That depends on the nature of the causal relationship between family incomes and the propensity to enlist. If there is no relationship, which would mean that the observed differences in enlistment rates between East and West are caused by something other than income differences, then the estimates should be reasonably accurate. The higher enlistment rates in East might be caused, for example, by East having a greater concentration of military recruiters than West. If, however, the different enlistment rates reflect a greater tendency for children of low-income families to enlist than children of high-income families, then the estimates probably are too high. In each of the two areas, the same phenomenon is probably taking place: lower-income youths are more likely to enlist than higher-income youths. This phenomenon would make the AFI for the families of recruits in East lower than the AFI for all East families, and the same in West. If the average income of recruits' families in East were $8,000, and in West $18,000, then the true AFI for Army recruits would be $10,500, not $12,500 ($12,000, not $14,000, for Navy recruits).

A second factor determining the accuracy of the estimates is how much variation there is within each area in the measure of interest--family income, in this example. If every family in East had an income of exactly $10,000, and every family in West an income of $20,000, then a greater tendency of lower-income youths to enlist would not introduce any error. If, however, incomes varied greatly within each area, then the error could be quite large.

Limitations

The observations above lead to three general conclusions about the limitations of the method:

- If differences exist between military and comparison populations, the method probably understates the true sizes of the differences.

- The understatement of differences will be larger the greater is the variation within areas in the measure being examined relative to the variation across areas.

- Conclusions about differences that emerge from the analysis can only properly be phrased as statements about the home areas of the populations being compared. Only with some caution, and an awareness of the first limitation above, should they be interpreted as statements about the true family characteristics of the individuals involved.

The understatement of the differences arises because differences that are apparent across areas probably also are present within each area, which leads to the understatement. At one extreme, if each "area" consisted of a single individual or family, the method would exactly measure the true differences. At the other extreme, if there were only one area--the entire country--then no differences could be detected regardless of the true state of affairs. Unfortunately, it is not possible, in general, to assess the relative importance of within-area and across-area variation in the available measures of socioeconomic status. One exception is family incomes: for each ZIP-code area, the census data include counts of families with incomes in each of nine broad ranges. Based on these data, it appears that the standard deviation (a measure of variation) of family incomes within areas is on average more than twice as large as the standard deviation across areas.

Taking the step from statements about home areas to statements about the actual backgrounds of the groups being compared requires making one or more strong assumptions, such as: (1) the people living within individual ZIP-code areas are generally homogeneous with respect to the measure being examined; (2) the factors that lead to differences in enlistment rates across areas are not important, or at least are less important, within areas; or (3) socioeconomic background is best measured not by the characteristics of the individual's own family, but rather by the general characteristics of the people in the community in which he or she resides. Although a case can be made for the accuracy of each of these statements, a cautious interpretation of this study's results seems warranted.

Available Measures

The study uses three measures of socioeconomic status: family income, education, and occupation.

Family Income. Average (mean) and median family incomes, reported separately for blacks, whites, and other races, and for all races together. Income is the most straightforward measure of economic status, and is probably more accurately reported in the census than in surveys in which young people are asked their parents' incomes.[2] Across ZIP-code areas, average and median family incomes span the full range reported in the census, permitting an examination of the extremes of the income distribution as well as the simpler comparisons of means, as in the illustrative example above. The counts of families in each of nine broad income ranges, although not directly used in this study for comparing military and civilian populations, provide useful information about the variation of incomes within areas.

Education. Distribution of the adult (more than 24 years old) population by educational attainment, in five categories: elementary school, some high school, high school graduate, some college, and college graduate. Separate distributions are reported for blacks and whites.

Occupation. Distribution of workers among 11 occupations, ranging from laborer to sales to professional. Information on workers' industries of employment is also available, but no analysis based on this information is reported in this study. Occupation and industry data are totals only, not divided by race.

RESTRICTIONS

The use of ZIP-code data limits somewhat the population of military enlistees that can be examined; data are not available for the outlying territories, and some recruits' ZIP codes appeared to be invalid. Data availability also limited the possible choices of civilian comparison groups. In addition, the necessary reliance on census data introduces some error into the 1987 comparisons because all of the socioeconomic and population data refer to 1979 or 1980.

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[2] The 1979 National Longitudinal Survey of Labor Force Behavior, Youth Survey, in common with many other surveys of young people, did not ask about parents' incomes. Berryman used other measures of socioeconomic status from this survey to assess the social composition of the military. See Sue E. Berryman, *Who Serves? The Persistent Myth of the Underclass Army* (Boulder and London: Westview Press, 1988).

Census data at the ZIP-code level were not available for the outlying territories (Guam and Puerto Rico, for example). About 1 percent of recruits came from these areas. Comparisons in which ZIP-code data are not involved, such as those on race and sex in Chapter III, include these recruits.

Individuals whose reported home-of-record ZIP code did not belong in their home-of-record state were eliminated from all comparisons involving ZIP-code data. They accounted for less than 1 percent of recruits. Comparisons of those rejected under this criterion with those accepted revealed no substantial differences in the distributions of such variables as education, race, sex, or region of the country.

The primary consideration in this study's choice of civilian comparison groups was that the youth-population numbers had to be based on counts of persons too young to have made their own location decisions, in order to reflect their socioeconomic background and not the characteristics of, for example, the locations of the colleges they might be attending. For this reason, even if it were possible to distinguish college attendees from enlistment-age youths who are working, it would not be desirable to do so unless college students could somehow be linked to the areas of their parents' homes.

Alternative measures of youth populations yield results for the socioeconomic variables that are surprisingly close, much closer to one another than they are to the results for the military populations. For the all-race comparisons in Chapters IV and V, the total population in the ZIP-code area proved to be a usable proxy for the youth population, notwithstanding the large differences in age distributions that might be expected across the country. For the race-specific comparisons, counts of elementary-school attendees in 1980 were used for both the 1980 and 1987 accession groups. For 1987 these counts would roughly approximate, ignoring migration, the enlistment-age population. Although these counts would be less appropriate for comparisons with 1980 enlistees, they were used nonetheless for consistency. Hence, the charts in Chapter IV have only one set of bars for "Youth," rather than separate sets for 1980 and 1987.

Several factors hamper the accurate comparison of socioeconomic characteristics for 1987 recruits and youth. First, the socioeconomic data, like the population data, are from a single year: 1979 for family income (census respondents are asked about total income for the previous year), and 1980 for the other measures. The income data could be adjusted for inflation, but as this would increase incomes in all areas proportionately it would not affect comparisons between recruits and youths. Second, inter-area migration between 1979/1980 and 1987 could affect both population and socioeconomic measures. Third, relative income levels across ZIP-code areas may have changed over time. Migration and income changes undoubtedly affected some ZIP-code areas greatly. Nationwide changes large enough to affect the comparisons in Chapter IV significantly, however, seem unlikely.

APPENDIX B

DEMOGRAPHIC CHARACTERISTICS OF NEW ACTIVE-DUTY OFFICERS

People entering active-duty military service as officers match the racial mix of their civilian counterparts much more closely than do those who enter as enlisted personnel. Of those entering the three lowest officer grades during 1987, 7.2 percent were black and 3.1 percent were from other minority racial groups (Table B-1).[1] For comparison, about 6 percent of the bachelor's degrees awarded during the 1986-1987 academic year (excluding those given to nonresident aliens) went to blacks, and about 3.8 percent to other minorities.[2] For males alone, about 5 percent of the degrees went to blacks and 4.1 percent to other minorities, also quite close to the percentages among new active-duty officers. Only among females is a marked difference evident between new officers and recent college graduates, with blacks substantially overrepresented (roughly 13 percent among new officers compared with about 7 percent among graduates).

The four services differ substantially in their recruitment of black officers, and in the changes they experienced between 1980 and 1987. In 1987, almost 12 percent of new Army officers were black, in sharp contrast with the 4.2 percent of new Navy officers who were black. Indeed, the Army alone accounted for more than half of new black officers in 1987, compared with only one-third of all new officers. Three of the four services increased the representation of minorities among their new officers between 1980 and 1987. For two of these (the Army and the Marine Corps), the gains were quite substantial. Only the Air Force recorded a drop in minority participation, by about one percentage point.

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[1] Officer "gains" as defined for the tables include all those who were serving on active duty at the end of the given year and not serving at the beginning of the year. This differs from the definition of "recruits" implicit in the chapters describing enlisted personnel. For enlisted personnel, the automated personnel files maintained by the Defense Department include records of their accession. For officers, information is recorded in the files only as part of periodic "snapshots" of the force. This explains the different definitions, and also is the reason why the officer records do not include home-of-record information, which is only relevant at the time of entry. Gains may include people with prior service, either as officers or as enlisted personnel.

[2] This estimate is based on unpublished tabulations by the National Center for Education Statistics. Data for earlier years are reported in Department of Education, National Center for Education Statistics, *Digest of Education Statistics 1988* (September 1988), p. 219. The data treat Hispanics as a separate group, rather than including them in the white or black categories as the military data in this paper do. The percentages reported above assume that 5 percent of Hispanics are black.

TABLE B-1. RACIAL DISTRIBUTION OF ACTIVE-DUTY OFFICER GAINS IN GRADES O-1 THROUGH O-3, BY SERVICE, SEX, AND ACCESSION YEAR (In percent)

	Male		Female		Total	
Race	1980	1987	1980	1987	1980	1987
Army						
White	91.7	86.4	87.5	79.4	91.0	85.0
Black	5.7	10.5	10.1	17.3	6.4	11.9
Other	2.6	3.1	2.4	3.3	2.6	3.1
Navy						
White	94.8	93.6	94.4	90.7	94.7	93.3
Black	3.3	3.9	4.0	7.3	3.4	4.2
Other	1.9	2.5	1.6	2.0	1.9	2.5
Marine Corps						
White	96.2	90.3	92.0	90.9	96.0	90.3
Black	3.4	5.8	8.0	7.6	3.6	5.9
Other	0.4	3.9	0.0	1.5	0.4	3.8
Air Force						
White	91.6	93.1	85.9	84.9	90.5	91.4
Black	6.2	3.7	11.5	10.7	7.2	5.1
Other	2.2	3.2	2.6	4.4	2.3	3.5
All Services						
White	92.7	90.9	88.4	83.8	92.0	89.7
Black	5.1	6.1	9.3	12.7	5.8	7.2
Other	2.2	3.0	2.3	3.5	2.2	3.1

SOURCE: Congressional Budget Office from Defense Manpower Data Center data.

NOTE: Officer "gains" include all those who were serving on active duty at the end of the year and not serving at the beginning of the year. Gains may include people with prior service, either as officers or as enlisted personnel.

TABLE B-2. PERCENTAGE OF FEMALES AMONG OFFICER GAINS IN GRADES O-1 THROUGH O-3, BY SERVICE, AGE, AND ACCESSION YEAR

Service	1980				1987			
	White	Black	Other	All Races	White	Black	Other	All Races
Army	16.1	26.5	15.5	16.8	18.3	28.6	20.7	19.6
Navy	15.4	18.3	12.8	15.4	10.0	17.7	8.3	10.3
Marine Corps	4.6	10.7	0.0	4.8	4.8	6.1	1.9	4.7
Air Force	18.5	30.9	22.7	19.5	19.0	42.7	26.3	20.5
Total	16.1	26.8	17.5	16.7	15.2	28.8	18.4	16.3

SOURCE: Congressional Budget Office from Defense Manpower Data Center data.

NOTE: Officer "gains" include all those who were serving on active duty at the end of the year and not serving at the beginning of the year. Gains may include people with prior service, either as officers or as enlisted personnel.

Women are underrepresented among new officers as they are among enlisted recruits, reflecting the same policies that limit the specialties open to women (Table B-2). More than half of the bachelor's degrees in the 1986-1987 academic year went to women, who accounted for only 16.3 percent of new officers in 1987. That ratio is substantially higher, however, than the 12.9 percent for 1987 enlisted recruits. Across the services, the ratio of female officers generally follows the same pattern as for enlisted recruits: highest in the Air Force and lowest in the Marine Corps. Like enlisted recruits again, new officers show a pattern of higher female participation among minorities. In 1987, nearly 30 percent of new black officers were female, for example, compared with only about 15 percent of whites.

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